Deferred Deliveries Only

THERE is certainly nothing "cockeyed" in the activity of this summer's business, but to say the least, it is amazing.

Only a few of the enlightened market commentators had the vision and temerity to predict a contra-seasonal summer business. The remainder said: "It wouldn't happen," but it did—and how.

The remarkable slant on the whole situation is the evident unwillingness of the blind business operators to believe the *facts* in the case. They still cling to their *opinions* and decide accordingly, contrary to the widespread admonition which tells them, "we have no moral right to decide on the basis of opinion that which can be determined on fact."

The facts in the matter of the continued business revival are these:

Business volume is right now at its peak. With the closing of August, the business volume was at the highest point since May, 1931. In the last week of August, it made its most impressive advance, rising 1.6 points from 77.5 to 79.1 per cent of normal, the sharpest upward swing in one week since the first week in April, when it rose 2.7 points from 67.4 to 70.1 per cent. In four months, the business volume in the United States has risen steadily, irresistibly, from 70.1 to 79.1 per cent, or an average of 2.25 points per month. Just one year ago, business volume was 67.1 per cent. So the level of business activity in this country made a sheer upward thrust of 12 points, or 17.88 per cent. And most of this spectacular advance occurred during the "supposedly" summer vacational dog-days period.

As a result, here is what we find: Steel is in a jam. Orders with requests for quick delivery are sorely taxing mill capacity. Steel mills last week were operating at 72.5 per cent of capacity; a year ago, the same date, they operated at 45.8 per cent—a better than 56 per cent gain. And the prognosticators say that steel will continue at 72 per cent or above for the balance of this year.

The records for all business done in the first six months of 1936 compared with the first six months of 1935 show handsome gains. Here are a few of the pivotal ones:

	Per cent gain over first 6 months of 1935
Passenger car sales	27
Commercial car sales	26
Household refrigerators	30
Value checks drawn	16
Farm income	12
Electric power output	13
Heavy construction	71

The above is a compilation of nation-wide increases taken from every state in the United States.

Freight carloadings are due to reach a fall peak of over 800,000 cars.

Railroad earnings for the first seven months of this year show an increase of 35.3 per cent, the best seven months since 1930. The July net operating income shows a gain of 129.5 per cent over July a year ago.

The nub of the whole matter is that June, July and August business is but the precursor of that upward sweep of business, which will result in the biggest distribution of profits made since 1930.

The paper industry shares in this tidal wave of regenerated business volume. The operating ratios show an increase of 13 per cent for the paper mills in the United States for the first six months of 1936 compared with the same six months of a year ago.

In some divisions, the increase is startling. A recent compilation of figures shows that the kraft board and kraft paper divisions combined will show an increased demand of 250,000 tons this year over that of a year ago. This means capacity operations for those divisions. The mills of these divisions will in all probability face a similar "jam" as that facing the steel industry at present.

Consumers of paper have no stocks. They have been misled by the "softness" of quotations persisting in certain quarters. However, they are due for a rude awakening some day soon, for today, in certain divisions, "it is not price, but service which counts." In lines like kraft board, bag, wrapping and specialties, many mills are hanging out "deferred delivery only" signs.

With added demand, which is immediately ahead this fall, hand-to-mouth buyers, who don't yet know that American business has staged the biggest volume business come-back in its history, will all wake up at the same time and lodge orders for needed papers for which some of them will wait months to receive. Attune your operation in accordance with the facts. "Deferred deliveries only" will be the reply to deferred orders seeking shipment from now on.

Just a Suggestion

THE recent joint international convention of the Technical Association of the Pulp and Paper Association marks another milestone in the progressive development of the pulp and paper industry.

For many centuries the art of papermaking was considered very secretive, and even now there are those in the industry who feel that what they know is their own stock in trade and govern their activities accordingly. The industry as a whole, however, is not of such an opinion. If it were so, the present day pulp and paper industry could never have developed.

Recent years have witnessed within the industry an ever-widening and growing appreciation of the value in the exchange of ideas. This change in thought has permitted the development of the trade press through which the experiences and observations of contributors have been made available to all people. Likewise, valuable textbooks on various phases of pulp and paper work have been written and published for the benefit of the entire industry, and individuals interested in the same line of work have aligned themselves into groups for the primary purpose of broadening the knowledge which they have of the industry that gives them their livelihood.

Some of these groups may be entirely informal. At first glance, they might not be considered as even organized bodies. Yet, wherever two people meet to discuss subjects of mutual interest, there is bound to be a broadening in point of view and an increase in knowledge on the part of each of them.

Other groups are national in scope and there are some that are more or less international in character.

With so rapid progress as has been made within the industry during the past few years and with a willingness on the part of many in the industry throughout the world to give to others the benefit of their knowledge, would it be amiss to suggest the possibility of a world-wide convention of the various educational groups of the pulp and paper industry? It seems that a meeting of this kind could be arranged without any undue difficulty; that it might be held at a time when and a place where delegates from each of the various pulp and paper-making countries could attend; and that such a meeting would weave together into a composite whole the activities of all the various groups in a manner that might be likened to the felting of the fibers on a paper machine wire.

What do you think of the idea?

Nothing to Do Right Now

PROBABLY there is no greater problem in industry than the handling of men. It is a problem that taxes the ingenuity of most executives most of the time. However, when stripped to its bare fundamentals doesn't it consist of dealing fairly with every employee at all times?

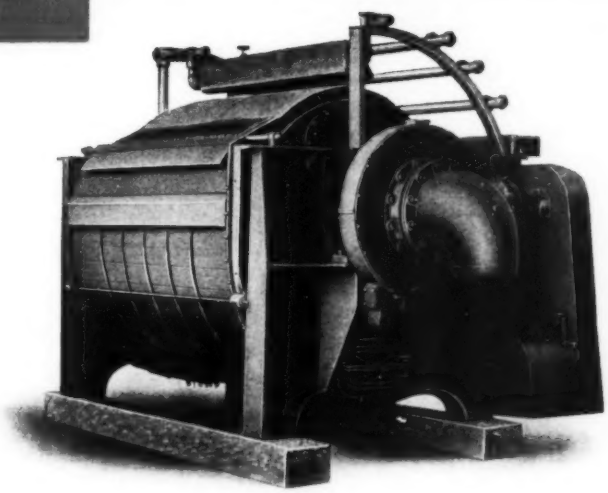
Imagine the feelings of an employee who is laid off with the reason that there is nothing for him to do right now, and who waits around anxiously to be called back on the job when conditions are better only to learn that the layoff is permanent and the reason for it was just an excuse.

Perhaps the boss had a legitimate reason for making the layoff. Maybe the employee did not meet all of the requirements of the job, or there may have been something else that demanded it.

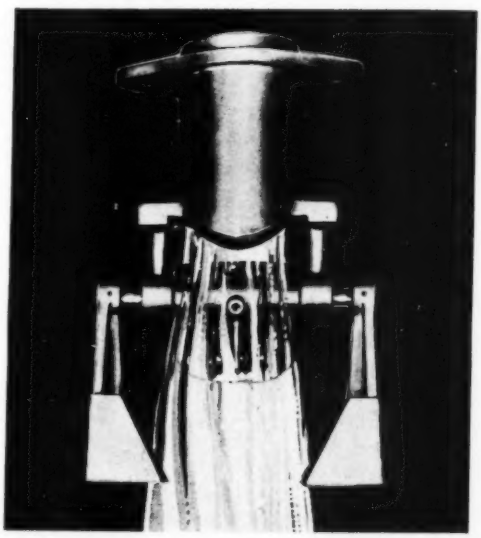
Whatever the reason, wouldn't it have been kinder and an indication of better executive leadership to have made the situation clear to him. Then he would have felt free to look elsewhere for employment. Most certainly later, if not at the moment, he would consider such frankness of his employer an act of kindness rather than something which was unfair.

It is appreciated that occasions arise when it is difficult to be frank, but it is believed that, if tempered with kindness, it always pays.

FAR AHEAD OF ALL OTHERS
AS A DECKER AND WASHER OF FREE CHEMICAL STOCKS



OLIVER - YOUNG



ABOUT thirty Oliver-Young Filters are now in service deckering or washing pulp. Capacities average much higher than those for any other filter.

As for washing efficiency, a typical case on chlorinated stock tells the story: 99 6/10% of the chlorine is removed consistently by washing on an Oliver-Young. Every unit is doing better than a ton per square foot per 24 hours.

And Oliver-Youngs are still further ahead when deckering or thickening free chemical stock, handling as high as 70 gallons per square foot per minute.

All mills handling free stocks will eventually have Oliver-Youngs.

OLIVER UNITED FILTERS INC.

33 West 42nd Street NEW YORK N. Y.

221 North LaSalle St. CHICAGO ILL.

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CURRENT THOUGHT

Merely a Matter of Direction

WILLIAM SIBLEY

SPEAKING of governmental trends, I wrote in these pages in September, 1930: ". . . Rather than follow in the footsteps of Russia it seems to me that we are following after the English. There, the communists, the socialists, the left wingers, the liberals, and others of varying shades of carmine, have gradually brought the English government to a point far removed from where it was in 1900. Government ownership of public utilities, government ownership and operation of manufacturing plants and retail establishments, unemployment doles, old-age pensions, governmental projects designed to give employment to the idle, and countless other socialistic ideas have been impressed upon the Government until today England is bowing under the weight of endless red-tape . . . As England progresses into the mire of socialism, the United States follows. Government ownership, unemployment doles, old-age pensions, needless soldier bonuses, government insurance, farm relief, and countless other socialistic do-dads are on their way to Washington . . . The way to stop it is with the ballot box. It's up to you."

The events of the past six years have amply justified this prophecy.

If Mr. Roosevelt is re-elected next November this nation will have invited further collectivization of farms, the confiscation and operation of many public utilities by the Government, the imposition of business-destroying taxes, the greatly accelerated movement toward communism, and the establishment of a real Labor Party—by 1940.

The forthcoming election is no Democratic-Republican fight. It is a contest between two great schools of thought. It is a test of strength for the conservatives on one side and the radicals on the other. Whether, after this election, certain New Deal policies are continued is not the basic consideration. Whether the budget is balanced, the gold standard resumed, taxes reduced, inflation started are not the real issues of this election. The vital consideration is the character of the support behind the opposing candidates. The question is not whether Roosevelt or Landon will, or will not, make a good president. *This* November we are *determining the direction of* our government for the next four, and perhaps forty years.

Behind Roosevelt there is the support of the more aggressive labor leaders who are using him as a tool for the establishment of a true labor party in 1940. Behind him are large blocks of so-called liberals, socialists, communists and progressives. These several groups have their several aims, ranging from collectivization of farms, through government ownership of utilities, to the establishment of a "peoples' front." While the socialists and the communists have tickets of their own, there is little doubt that Roosevelt will poll a large percentage of the socialist votes, and it is a known fact that Moscow has ordered communists to support Roosevelt rather than their own Earl Browder. . . . Not because Roosevelt is definitely communistic or is in sympathy with the Soviet, but because he represents for them an advancement *in their direction*.

Behind Landon is the almost unanimous support of the business interests of the nation. . . . All of them, from the giant industrial concerns to the tiny, local retailer. To him will go, in overwhelming measure, the support of doctors, lawyers, architects, engineers, business men and industrialists. Behind Landon is that large group of self-supporting, thrifty people who are able to keep above the need for governmental help—who distrust political experiments of any kind at any time—who would rather stand still than move by uncertain experiment.

If Mr. Landon is elected the aspiring and hopeful radical elements will be halted. The move toward a complete change in our governmental structure will have been stopped. Landon might, and probably would, find himself helpless to do a lot of things because many of the issues at stake have already progressed too far for overnight interruption. But the general direction of our government would have been put back on the main line—and that is the main thing.

If Mr. Roosevelt is re-elected he will be swept irresistibly along the siding he switched to back in March of 1933. Whether he or anyone else should like it we would witness material advancement toward nationalization of planning, regimentation of both agriculture and industry, and a complete change in the character of the Supreme Court which now blocks merely the rapidity with which such veerings to the left are made. The control of governmental affairs would remain in the hands of radicals who would seize their four-year opportunity to entrench themselves beyond blasting.

This November we shall go to the polls and decide —not what party we belong to—but what kind of people we want at the head of this nation. We have gone too far to turn very sharply toward the right. The question is: shall we continue to go to the left—or straight ahead? Shall we have a radical government or a conservative government? . . . Take your choice.

ADVERTISING PAGES REMOVED

THE PAPER INDUSTRY

A MONTHLY EDUCATIONAL JOURNAL

Handmade Paper . . .

an Ancient Craft that Still Survives

HARRY S. SPENCER
Manager Beauharnois Division
Howard Smith Paper Mills Ltd.

WHILE the actual method of manufacturing handmade paper is interesting in contrast to the modern paper mill, doubtless it will occur to the reader that the quaint customs and arrangements between the employer and employees can only be the result of prevailing conditions of yesterday. The very fact that these things prevail today in mills where paper is made by hand, may be taken as an indication of the conservative nature of the industry.

Certain improvements may be seen in the mechanical equipment of the mill, but this is the dead-line in so far as changes are concerned. What his father did, the son does. This applies both to the actual process of papermaking and to the working conditions.

One may find harmony today in modern industry between employer and employee, but nowhere is it more apparent than in the handmade paper industry in England, where a complete confidence exists between the two parties. The employer continues to do what his predecessors have done for those in his employ, and they in turn put forth the same conscientious effort as did their fathers.

The march of progress has made but few inroads on the methods and fundamentals of manufacture of handmade paper. Mass production with all of its economic perplexities can never find a footing in this little industry. Granted that its very nature would tend to prevent this, there is to be found in this ancient craft one of the remaining monuments to the artisans of yesterday.

In England, there are several mills in operation today where the type of equipment and the methods of the papermakers differ little, if any, from those of their forefathers. Truthfully, it can be said that the maker of handmade paper inherits both his trade and his pride of product from past generations.

Although the industry is small, there is a sufficient demand for this class of paper to keep it in operation and to enable it to maintain its present cherished principles.

The ancient craft of making paper by hand is not the creation of any one outstanding individual, but the product of long generations of patient and devoted workers; each of whom has taken a personal pride in the skillful manipulation of his material and in the production of a beautiful sheet of paper.

When the maker of handmade paper shakes his mould, he feels the thrill that comes only to the creative craftsman, and every employee of the mill has learned that the production of perfect paper gives satisfaction and pleasure to all concerned in its manufacture. The inherited skill and the carefully trained faculties of the expert workman find their due reward in the perfection of the product.

The origin of paper manufacture dates back to the early days of the Christian Era. The Far East knew the secret for hundreds of years before conquering Arabs learned of its manufacture from the Chinese and later spread knowledge of paper into Europe. So long ago as 1102 A. D. the King of Sicily set his seal to a deed inscribed on handmade paper. It is claimed that that deed is still in existence, which is very definite evidence of the durability of paper made in this way.

Watermarks, which originally were crude pictures of

animals or reproductions of religious symbols, came into use about 1300 A. D. and later when papermaking was introduced into England all paper was handmade until the beginning of the nineteenth century. Curiously enough, the handmade paper industry was revived about the time that papermaking machinery was first introduced. Many new mills were built and the workmen's society was founded.

The secretary of the Original Society of Paper Makers in England states that the society came into existence in the year 1800, or just about the time when

The Bearer
Having served a legal Apprenticeship
to the Art of Paper Making is entitled
to participate in all its advantages.
Dated this day of 19
Secretary

Fig. 1—Facsimile of the "Card of Freedom"

paper machines began to make their appearance. Previous to this time, the workmen belonged to a loosely organized guild, and its failure to keep workmen to a high standard was responsible for it being replaced by the Original Society.

All members have to serve an apprenticeship of seven years to the art of papermaking. These are only a portion of those who start out to master its fundamentals. Not all men can be trained to learn the art any more than they can learn to paint a likeness on canvas or become skilled musicians. If a man has musical talent, he can be trained to become an expert musician, but without talent he is doomed to failure. Similarly many men are absolutely unable to become good handmade papermakers regardless of years of effort.

It is interesting to note that the membership of the Society can be traced from generation to generation, son following father in unbroken succession. This also applies to the employers.

The employers are now known as "The Paper Maker's Association of Employers of Carded Labour." The title is the outcome of a rule of the Society which demands that every apprentice on the completion of his apprenticeship shall obtain from the Society what is termed his Card of Freedom, without which no man can be employed in the making of handmade paper. A facsimile of the Card of Freedom is illustrated in Figure 1.

One of the most interesting visits made on my papermaking journey was at the "handmade" mill of J. Barcham Green & Son, Maidstone, England, where I was the guest of Mr. Jack Green, who very generously outlined all of the steps in the manufacture of handmade paper. Their entire method of operation, payment of wages, handling of men, etc., is most unusual, being entirely different from methods used in other paper mills.

The preparation of half stuff is similar to that used in a fine machine mill, with certain modifications. The rags are all cut by hand and sorted four times at various points through their process. Each sorting seems to bring various impurities to light.

Linen and cotton rags are boiled in open tanks without pressure. White rags only are purchased and require weak solutions of soda ash.

The washing is done in old fashioned machines specially constructed to rub out the fiber without destroying the strength. Pure spring water is used for washing, the impurities being removed in solution by a drum washer.

After washing, bleach liquor is added to brighten the color and then removed by means of the drum washer, the stuff being tested by iodide or starch strips.

No drainers are used and the washed stock goes direct to the beaters with wide bars. It is then dumped directly into other beaters with narrower and sharper bars which clear the stock of lumps and correspond to jordans in their refining action. The beaters are quite small, of approximately three hundred pounds capacity, and from these old-type Hollanders the stock passes to chests, there being one chest for each of five vats. Each chest leads to a vertical knotter or screen of small capacity sufficient to allow the passage of just enough stock for one vat.

The vat is an open-top tub containing the finely beaten rag stock at a consistency suitable for hand operation. The stuff is agitated by "hogs" revolving at a speed sufficient to keep the fiber in continuous suspension.

The mould for making handmade paper is the chief tool so skillfully manipulated by these artists. It is built on a framework of hardwood in which are set at convenient distances a number of thin transverse wooden bars which are perforated with small sewing holes.

Used in conjunction with this frame is what is termed the "deckle," closely resembling a picture frame, which when placed in position around the mould provides the necessary edge to keep the pulp from running off the mould back into the vat and determines the exact size of the paper.

The surface of the mould (called the sheet) is provided with a laid wire sheet or a woven cloth sewn down to the framework, the sewing wire passing through the perforations in the bars. The laid covering is the older form and is so called because its component wires are actually laid in position as the sheet is formed, being held together by chain or twist wires. The design of this mould differs but slightly from the earliest type.

The original construction of a paper mould was probably accomplished by weaving vegetable fibers or split cane together to form a mesh which was stretched over the framework and could be dipped into the vat for removal and drainage of stuff to form sheets of paper.

The introduction of drawn wire and improvements in mechanical construction of moulds has given the mould maker a surer foundation for intricate water-marks and has provided the vatman a better opportunity to display his skill.

The vatman holds the deckle continuously in his hands, placing it on the mould when he receives it from the bridge and removes it after the sheet is formed before passing the mould and sheet to the coucher.

Close observation of the movements of the vatman reveals a complete absence of lost motion. Years of experience have produced a perfection of bodily rhythm which I have never seen elsewhere except perhaps in the expert golfer.

The vatman stands in front of the vat (Figure 2) containing the stuff at suitable consistency. His only utensils are his mould and the detached deckle. The side of the mould nearest his body is dipped into the stuff first. The back of the mould is not submerged. The vatman raises the mould and when it is horizontal the stuff flows all over the surface.

The first shake is from left to right which combined with the tipping motion causes a wave to pass from front to back, carrying off the surplus stuff and leaving it level with the top edge of the deckle frame. The water starts to drip out from the bottom of the wire mesh which is the beginning of the formation of the sheet. The next shake movement is from back to front, diminishing with the closing of the sheet.

The mould is then placed on the stay but the vatman retains the deckle in his hand ready to place on the other mould which is being pushed up the bridge.

The control of the thickness of the sheet is maintained to a remarkable accuracy and adjustments must

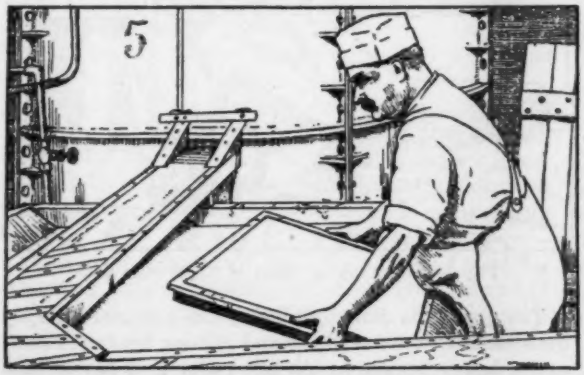

Fig. 2—Vatman in the act of making a sheet

be made occasionally by adding water to the stuff. As the vatman cannot make paper all day without a rest, he occasionally changes places with the layer or the apprentice when he is skilled enough, and on these occasions the basis weight is liable to vary. No two vatmen are alike in technique, each having his own style.

I was fortunate in being able to go through the process under the guidance of these craftsmen, who stepped aside long enough that I might actually produce my own handmade paper. A special mould of not too generous size was handed to me by the vatman, who carefully instructed me and demonstrated its use. It looked extremely simple. After removing my coat I tried to duplicate the movements of the vatman, but it seemed my elbows were too straight. When this was corrected, I was told my wrists were too stiff and my weight was not balanced properly. When my "stance" was finally approved, I was on the point of realizing that perhaps this was not so easy as it looked.

On my first attempt, I got too little stuff. On my second, I got too much. My third was about right for quantity, but I did not start the shake quickly enough,

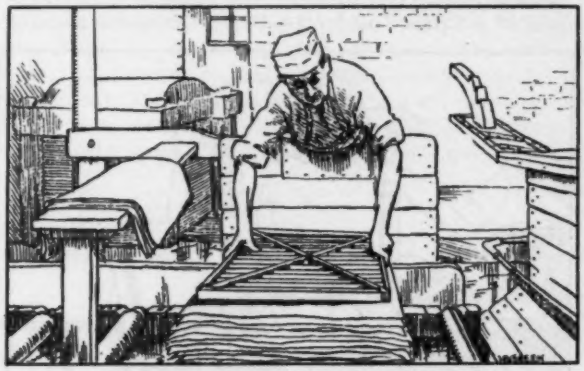

Fig. 3—Coucher pressing mould onto felt

with the result that I had very poor formation at the top of the mould. On my fourth sheet, I did fairly well, then I made several sheets in succession, missing only once when I failed to get enough stock on the mould.

The coucher takes the mould from the stay and while it appears that he is pressing it flat on the post (Figure 3) he actually forces the right side down harder, then with a rolling action he transfers the pressure to the left side while slightly raising the right edge which releases the mould from the sheet of wet paper now lying on top of the post. The coucher is enabled to grip the edge, lift the mould clear, place it on the bridge and slide it up to the vatman with that ease of movement which only years of practice can make possible.

Here again I ran into trouble and found that I lacked the knack of even turning over a felt properly. I was shown how to take a felt from the felt board with my right hand, catch the other corner with my left and throw it onto the post. The idea appears simple enough but I was unable to do this without wrinkling the previous sheet on top of the post, whereas those experts pitch the felts from one location to another with no apparent effort and with accuracy.

The post, which is 2½ to 4 quires, depending on the size and sort, is a group of alternate felts and paper, to which the "layer" takes and covers with a "pilcher" which is a wad of felts sewn together.

The post is placed in a hydraulic press subjected to about two tons per square inch pressure. This must be regulated to prevent the paper from being too soft, or so solid that the sheets cannot be pulled apart. The post is removed by the layer, who takes off the pilcher and starts "unmaking" the post. The felts and pressed sheets are again handled with that rhythm acquired from years of experience.

The manufacture of larger sheets and the control of

two-sheet moulds is much more difficult than making smaller sizes. This requires an "upper end boy" who helps the coucher with the larger size moulds and the larger felts.

On very thin papers only there is required a "slice boy" to guide the lower edge of the sheet as it is laid onto the post. He is seated in front of the layer on a boy stool.

On removal from the press, when the paper is separated from the felt, it starts on a journey through the mill which lasts about three months and requires about one hundred different handlings.

When taken from the felts, the paper is piled in the form of a "pack" and placed in a hydraulic press of another type. Four feet or more of paper is squeezed until water oozes from the edge, and after twenty-four hours these sheets are taken apart (Figure 4). The separated sheets are again placed "paper to paper" to form another pack, the intention being to allow air between the sheets and to reduce the felt mark by pressing the sheets against each other. The felts have a distinct grain which is objectionable on most papers, and great pains are taken to obliterate the mark which these felts have left on the surface of the paper.

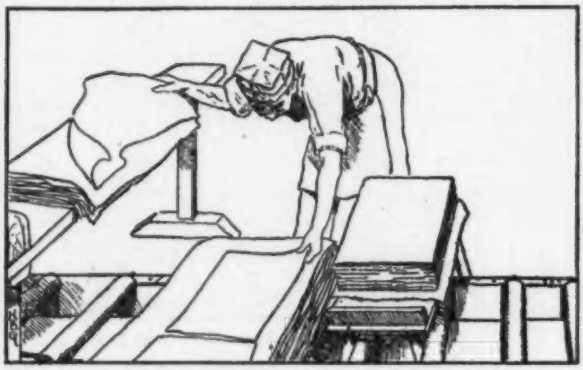

Fig. 4—Layer separating sheets of paper from felts

The parter's duty is to divide the paper in the pack sheet from sheet and pile it up again in the same order as before (Figure 5). It can be readily understood that adjoining sheets will not fall together exactly as before, and that another pressing will still further assist in removing the grain. Rough papers do not require this parting and pressing and show the natural mark of the felt. Writing papers and those grades demanding a more perfect surface are pressed three times or more.

After the last pressing, the sheets are not parted but are taken to the loft in solid blocks and placed on a table. The dry worker picks up a wad of ten to twenty sheets without separating them and places them on a flat canvas stretched between trebbles, or hangs them on ropes covered with cow hair. The latter acts to prevent the paper from becoming discolored.

Loft drying is accomplished without the slightest attempt to rush matters. During warm weather, the natural air is used, the best drying being from the west wind which carries some moisture. An east wind which originates in Russia is too dry and causes something analogous to case hardening instead of the gradual drying preferred. After drying, the paper hangs in the loft for twenty-four hours for conditioning. After it is matured in the loft, it is pulled down and stacked in a cool place where it is further matured for a week before it is considered ready for sizing.

Until quite recently, some papers were sized in the old fashioned way by hand labor (Figure 6). The sizing machine has supplanted this almost entirely. It is similar to size tubs used in fine machine mills except that the sheets of paper are carried between endless felts down and through a glue sizing solution extending thirty feet or more in a shallow trough. As the felts with the paper between them emerge from the last glue, they pass between squeeze rollers to remove excess size. The glue is not only kept at a high temperature but is enclosed in a heated chamber. The glue solution can be made from prepared gelatine or extracted from hide cuttings, and it seldom contains anything other than alum.

The sheets are pulled off the traveling felts and piled in heaps where they are left for many hours wrapped in felt to retain the heat and to prevent staining. The sheets are then separated from each other in a manner already described but for a different purpose. If the sheets were not parted after the sizing they would stick together and prevent subsequent processing. They are then taken to the size loft after which the better papers are re-sized with a separate drying between the two operations. Two and even three re-sizings are given to some qualities where unusual hardness and erasing properties are demanded.

The paper again matures for a considerable period before it is considered advisable to proceed with the finishing. Before finishing, however, it goes to the "pickers" who sort and remove defects in the rough state. This defective paper is called "picker's broken."

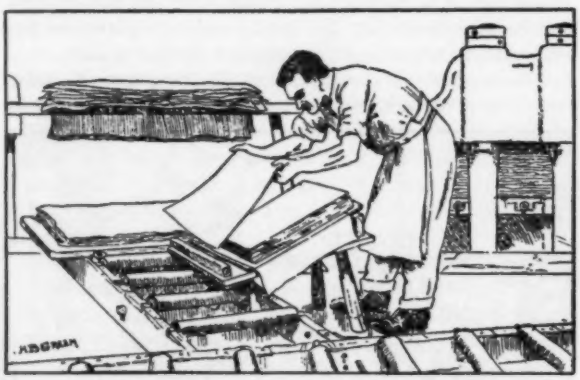

Fig. 5—Layer laying sheet of paper onto pack

The glazing is done by placing the paper alternately between zinc or brass plates and passing between rollers under heavy pressure. As one roller goes faster than the other, the paper is subjected to a combination of pressure and friction.

The last process is sorting out defective sheets where problems are encountered similar to those found in all paper mills.

Practically all the employees of J. Barcham Green & Son are paid on piece work so that workers come and go at their own convenience. Men are allowed to smoke in the mill where the floors are wet and they have benches provided where operators may read the paper while they are resting.

Unless an employer especially "requests" the men to be present on a certain day, he may arrive at the mill to find that they have decided not to work on that particular day. Moreover, they will not continue working if a man does not feel quite up to the mark either physically or mentally. Sickness in his home or a sore shoulder muscle may prevent a workman from doing his best work, in which case the whole crew will cease making paper and will not return until they all feel able to do their best. The mentality of these men is that of artists, usually they are sensitive to a high degree and conscientious to a fault.

The vatman, coucher and lay boy do not correspond to the three operators of a paper machine because they

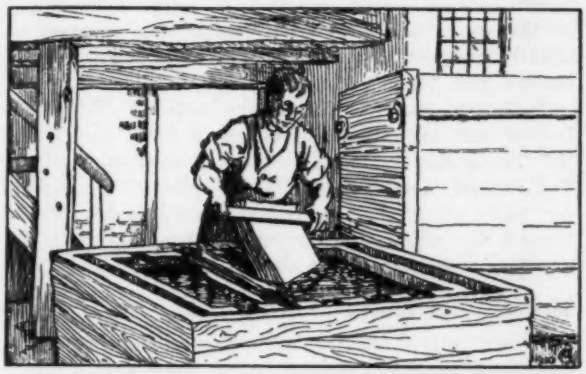

Fig. 6—Sizer dipping waterleaf paper into gelatine size

have each gone through the complete apprenticeship and training to make them an all around papermaker. The vatmen get four cents per day more than the coucher and the coucher gets four cents per day more than the lay boy. One of their lay boys was eighty-two years of age.

All of these men get thirty-five cents extra pay on Mondays because one hundred years ago it was customary to get drunk on week ends and they seldom put in an appearance on the beginning of the week. They still get the same bonus given to them then as an incentive to work on Monday.

Years ago free beer was provided the employees from their own mill brewery. When this was discontinued, the men received extra money instead of beer, a practice still followed today. The pay is made up to include other sums representing agreements of many years standing.

The pay roll is *not* made up in the office and used for distributing wages. Instead, the men present their bill for work done at the end of the week. The foreman and his men act in the nature of contractors to the employer.

Moreover, the men are not paid individually. The vatman, for example, will be given the total amount of wages for himself, his coucher and lay boy. These three men probably have various agreements and customs among themselves. Washing the vats is the vatman's job but he may have a private understanding with the lay boy to do this for fifteen cents. The coucher's job includes washing the knotter or screen and he may do this himself but pay the lay boy for doing his work while he is smoking.

If a quotation is required on a special order, the employer asks the foreman to have the men quote a price to him, usually something over and above the regular rate which is accepted as standard practice.

The men go into a room to talk it over and then state what they are willing to accept per post. As an example, they might ask sixteen cents for the extra large size, twelve cents because the water-mark looked rather tricky and four cents to make sure they had overlooked nothing. The employer might accept this or ask them to reduce it, but once the bargain is set, it remains.

Author's Acknowledgment

The author expresses appreciation for the assistance of Mr. Jack Green, of J. Barcham Green & Son, Maidstone, England. Mr. Green, who has spent many years in this industry, furnished authentic documents, miscellaneous data, and the illustrations that appear in this article. Incidentally, the illustrations have been drawn from life and furnish a true picture of the ancient craft.

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Weathering Quality of Roofing Felts

LESS expensive fibrous materials than the cotton rags usually used can be utilized satisfactorily for the manufacture of roofing felts, according to the results of tests conducted at the National Bureau of Standards by O. G. Streiter, research associate of the Manufacturing and Industrial Research Committee of the Asphalt Shingle and Roofing Institute.

Experimental felts were made of cotton rags and various mixtures of cotton rags, old jute and manila bagging, old newspapers, sulphite wood pulp and wood sawdust. Some of the felts were made in a commercial mill but those containing the larger amounts of "substitute material" were made in the Bureau mill as the equipment of the former was not suitable for these products. Tests of the felts for strength and asphalt saturating quality showed that felts satisfactory in these respects could be manufactured from cotton rags with the addition of these substitute materials without difficulty.

The felts were made into two sets of commercial roofings in a commercial mill, one set being simply saturated with a relatively soft asphalt and the other saturated and then coated with a somewhat harder asphalt. Both sets were exposed outdoors on the roof of a Bureau building, and at various intervals up to 7 years were tested for extent of deterioration, as indicated by loss of weight and strength, decrease in thickness, degree of exfoliation of asphalt, and change in water absorptiveness. In all cases, there was no significant difference in weathering quality that could be attributed to the kind of fiber present. As is to be expected, the asphalt coating protected the saturated felts from weathering. It was found also that the felts made in the Bureau mill weathered better than the others, and this is attributed to their greater compactness, which decreased the exfoliation of the asphalt. Their compactness was due to fiber composition and a slightly prolonged beater operation which brushed out the fibers and caused them to become shorter and slightly gelatinized on the surface.

Determination of Alum Concentrations

LINTON E. SIMERL[1] and D. S. DAVIS[2]

MANY paper mills which go in strongly for technical control, as shown by close attention to qualitative and quantitative analyses of the raw materials and to elaborate physical and chemical testing of the finished product, accord scant attention to the concentration of their alum solutions. This is all the more remarkable in view of the detailed quantitative examination of the solid alum for insoluble matter, total soluble alumina, ferric and ferrous iron, foreign sulphates, and sulphur trioxide and of the daily tests on the concentration of the rosin size milk.

Where testing of the alum solution is undertaken at all it usually takes the form of a Baumé determination, often without a simultaneous temperature reading.

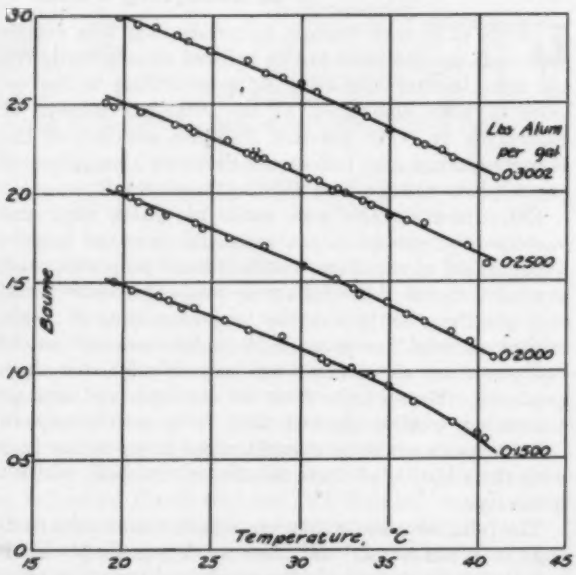


Figure 1

Occasionally someone will attempt to convert the Baumé figure into the relatively more significant percentage value through the use of fragmentary data available in the handbooks and of assumed corrections of Baumé for temperature which are usually sadly in error.

As a result, few mills using alum solutions have any thoroughly reliable data on the actual amount of alum present in their beater furnishes and errors in making up the alum solutions may go undetected for days. Because of the importance of the size-alum balance, the expense of the alum, and the effect of alum concentration upon freeness and dyes it would appear that greater attention should be given this item and that there is a need for a testing method which should meet the following requirements:

1. It should be accurate.
2. It should be capable of completion in five minutes.
3. It should yield the concentration in percentage or in pounds per gallon rather than in an arbitrary gravity unit.
4. It should be within the scope of a sample boy.

Experimental Method

With these points in mind four alum solutions of known concentrations covering the range encountered in the mill were prepared. Each was warmed to slightly over 40° C., and allowed to cool slowly while Baumé and temperature readings were taken. The hydrometers employed were graduated to 0.01 deg. Baumé and permitted estimation of 0.001 deg. while the Centigrade thermometer allowed estimation of 0.1 deg. Baumé—temperature (B — t) plots of the eighty-five pairs of values so obtained proved to be concave toward the origin, the curvature increasing with decreasing concentration as shown in Figure 1.

Mathematical Treatment of the Data

It was noticed that the curves could be rectified by plotting $B \log B$ vs t as required by the equation

$$B^B = 10^{mt + a}$$

and that m and a were related to the solids content in pounds per gallon, S by the expressions

$$m = 0.03243\ S^{-0.392} - 0.0875$$

and

$$a = (9.386\ S - 0.758)^{1.053}$$

Use of the Nomograph

Most hydrometric determinations of solids result in variables connected by means of an involved equation which, however, can be readily solved by an alignment chart wherein the complexity of the relationship is not reflected. Such is the case with the accompanying alum nomograph, Figure 2, the use of which is illustrated as follows: What is the concentration of an alum solution having a Baumé of 2.200 at 24 deg. C.? Connect 24 on the Centigrade temperature scale with 2.200 on the Baumé scale and read the desired value on the curved concentration scale as 0.235 pounds per gallon.

It will be noted that all the axes are doubly graduated: both Centigrade and Fahrenheit scales are used, as well as Baumé and specific gravity units, and concentrations of alum in pounds per gallon and in per cent. Percentage concentration is obtained from the expression

$$\frac{100S}{8.345\ \delta}$$

where δ is the specific gravity at 20 deg. C. Reference to the nomograph will show that an alum solution exhibiting a specific gravity of 1.009 at 83 deg. Fahr., has a concentration of 1.90 per cent.

The four requirements for a satisfactory test method are fully met since any laboratory boy can complete the test in three minutes, reporting a definite concentration value reliable to about one per cent.

(1) Chillicothe, Ohio.
(2) Dale S. Davis' Associates, Watertown, Mass.

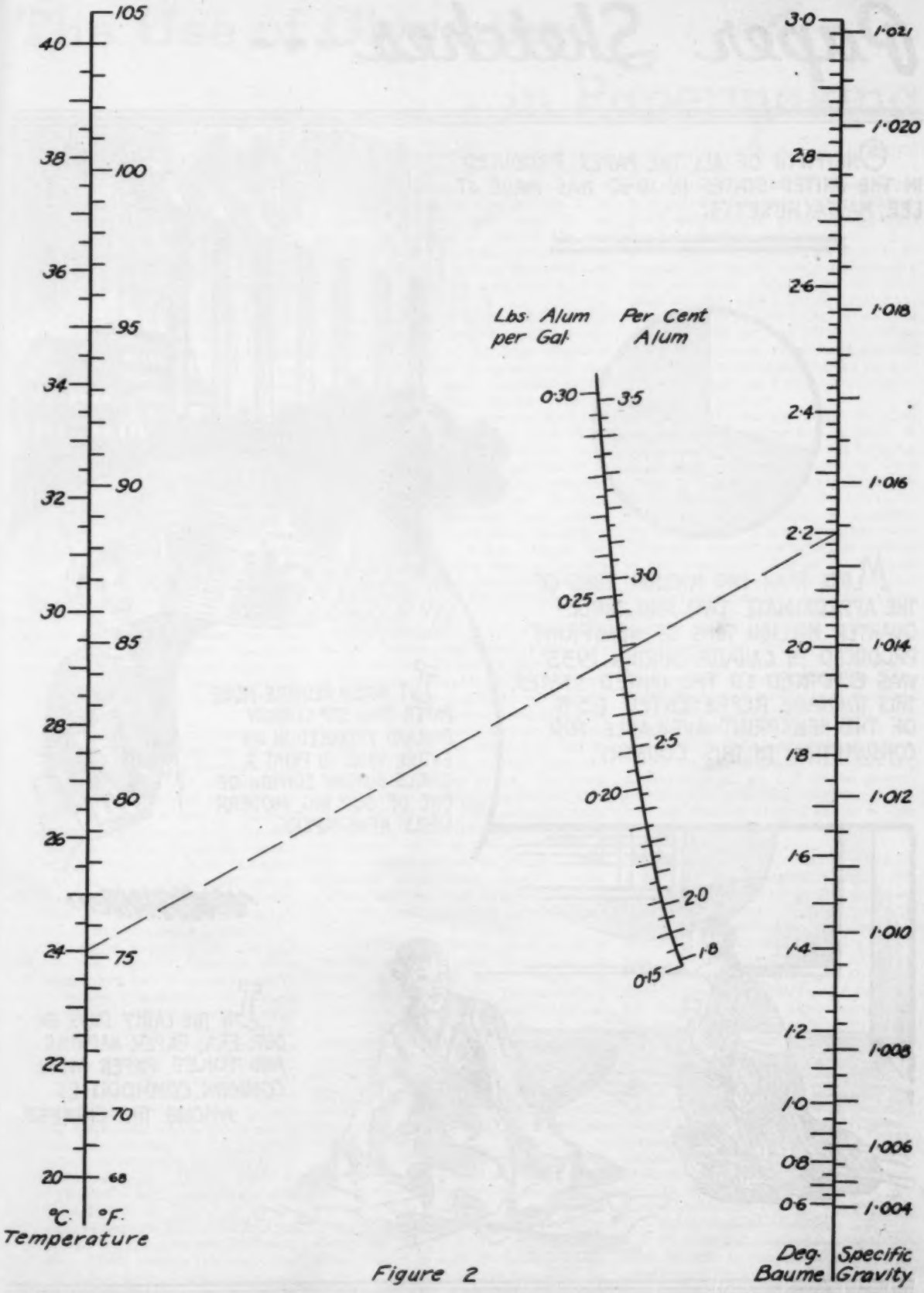
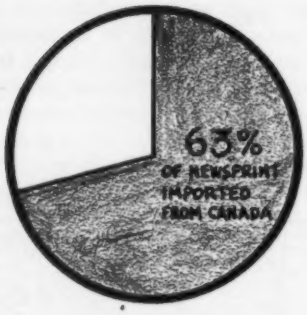

105
40
38
100
36
95
34
90
32
30
85
28
80
26
24
75
22
70
20
68
°C.
°F.
Temperature
Lbs. Alum per Gal.
Per Cent Alum
0·30
3·5
3·0
0·25
2·5
0·20
2·0
1·8
0·15
3·0
1·021
2·8
1·020
2·6
1·018
2·4
1·016
2·2
2·0
1·014
1·8
1·012
1·6
1·010
1·4
1·2
1·008
1·0
1·006
0·8
0·6
1·004
Deg. Baume
Specific Gravity

Figure 2

Paper Sketches---

ONE-FIFTH OF ALL THE PAPER PRODUCED IN THE UNITED STATES IN 1840 WAS MADE AT LEE, MASSACHUSETTS.



MORE THAN TWO MILLION TONS OF THE APPROXIMATE TWO AND THREE-QUARTER MILLION TONS OF NEWSPRINT PRODUCED IN CANADA DURING 1935 WAS EXPORTED TO THE UNITED STATES. THIS TONNAGE REPRESENTED 63% OF THE NEWSPRINT AVAILABLE FOR CONSUMPTION IN THIS COUNTRY.

IT WOULD REQUIRE MORE PAPER THAN 17TH CENTURY ENGLAND PRODUCED IN AN ENTIRE YEAR TO PRINT A SINGLE SUNDAY EDITION OF ONE OF OUR BIG, MODERN DAILY NEWSPAPERS.

IN THE EARLY DAYS OF OUR ERA, PAPER NAPKINS AND TOILET PAPER WERE COMMON COMMODITIES AMONG THE CHINESE.

The Use of Glycerine in Papermaking

GEORGIA LEFFINGWELL, Ph.D.

A WELL-KNOWN writer once said "There's more poetry in the making of paper than ever goes onto it after it's made." To trace the various stages of the manufacture of paper from the great logs or the vegetable fibers to the finished sheet is an epic in itself—an epic of American industry.

To the average paper manufacturer, the place of glycerine in that epic is essentially the story of the industry's need for an effective softening agent or plasticizer. Glycerine, therefore, is steadily keeping pace not only with the increasing demand in recent years for coated papers to be used for halftone and color printing and for other purposes, but it is also keeping step with the constant development of new types of paper—surface-sized papers, paper towels, waxed wrappers, etc.—in the manufacture of which such a softener is an essential material.

The importance of glycerine as a plasticizer is recognized by every manufacturer. It is generally known that through its power of absorbing and retaining moisture it has the dual softening function of (1) increasing the moisture content of the paper and (2) serving to lubricate the fibers. The function of glycerine in softening paper and keeping it soft is only one chapter in the fascinating story of this important fluid.

Even within the paper industry the full extent of the potential use of glycerine is only now being recognized, as pulp and paper research chemists uncover new possibilities of practical application to meet advancing modern standards. According to R. G. Macdonald, Secretary of the Technical Association of the Pulp and Paper Industry, "Glycerine is used to keep paper soft, to give body, to increase germicidal power, to soften the paper, to prevent shrinkage and to improve paper flexibility."

In the major phases of its use as a softener, the value of glycerine is so well established that it is hardly necessary to review it in detail. But certain points of special interest may be touched upon briefly. For example, a helpful application of glycerine in the production of vegetable parchment is discussed by C. F. Cross and E. J. Bevan in their work *A Textbook of Paper Making*.

In this usage, glycerine acts to prevent the brittleness which would result from the total drying of the product. The process is described as follows: A pure cellulose paper (water leaf) is passed through a bath of sulphuric acid, varying between the limits of 53 degrees and 60 degrees Bé., corresponding with 67.0 to 78.1 per cent sulphuric acid strength. After passing through the acid, the web of paper is at once plunged into water. This arrests the action of the acid and determines the fixation of the reverted cellulose as a semi-fibrous colloidal aggregate.

At this point of the process it is stressed that the web must be exhaustively washed to remove the last traces of acid. Previous to the drying, it is treated in a bath of glycerine and glucose and then dried on drying cylinders.

In a discussion of vegetable parchments, Sheldon Leicester, another recognized authority, in his *Practical Studies for Paper Manufacturers*, also points out that many vegetable parchments (especially the thicker varieties which are apt to be somewhat hard and brittle) require softening with some hygroscopic substance to render them more pliable. He suggests glycerine as the most suitable agent for this purpose.

Leicester continues further: "In some cases where, for economy, invert sugars are used instead of glycerine for softening parchments, moist, warm atmospheres will cause them to mildew and discolor. A microscopic examination will determine the presence of the fungus."

The superiority of glycerine over various substitutes which have been tried from time to time is further noted by Edwin Sutermeister in his *Chemistry of Pulp and Paper Making* wherein he discusses the practice of using glycerine or some of its substitutes in addition to the two main ingredients in coating mixtures to give the coating increased pliability or folding power. Referring to tests showing that commercial glycerines absorb very little moisture from the air so that the increase in weight of the paper would be practically that of the glycerine added, he states: "The glycerine substitutes, mostly invert sugars, are even less hygroscopic than glycerine itself and hence have even less effect."

According to experts, glycerine is a definite asset in the prevention of wrinkling of sized paper. When the paper becomes very dry the wrinkling is due to a greater shrinkage coefficient in the size than in the paper. To prevent this wrinkling, the *Chemical Formulary* recommends the utilization of the moisture-absorbing properties of glycerine to increase the hygroscopicity of the size. By adding enough glycerine to equalize the shrinkage, the wrinkling will be prevented.

Because of its various properties, glycerine is being used more and more in formulas for grease-proofing paper and for other processes. A number of proven values are listed in the *Chemical Formulary*, which further reports that paper dipped in a 10 per cent solution of glycerine and dried will thereafter be very soft and cloth-like. Patented processes in which glycerine is utilized are numerous.

A formula of particular interest which it is claimed will render paper moisture-proof, grease-proof and acid-proof calls for the following treatment:

The paper is impregnated at 60 to 65 degrees with an aq. solution containing (wt. per cent) pure gelatin 12; Irish moss 6.5; hide glue 3.25; glycerine 8.25; $COME_2$ 0.375; NaOBz 0.125; K alum 2; Na alum 1; 37 per cent CH_2O 0.5. Then the dried paper is treated with another glycerine solution consisting of 1 lb. of 37 per cent CH_2O and 1 oz. of glycerine in a gallon of EtOH.

Even in the earliest stages of paper manufacture glycerine has its place. It plays an important role in the isolation of cellulose in ligneous materials. This usage is discussed in some detail by Henry Aldous Bromley in *Paper and Its Constituents*, a manual of technical methods. Bromley points out that while Cross and Bevan's chlorination method is now generally accepted as the most satisfactory means of isolating cellulose in ligneous materials, it is sometimes criticized on the ground that part of the residual cellulose is impure in the sense that it contains a furfural-yielding complex. Bromley states, however, that this complex may be removed by hydrolysis of the fibers with a mixture of glycerine and acetic acid, a reagent which he notes possesses the specific advantage of not attacking the cellulose itself. This mixture is made from glacial acetic acid and glycerine of sp. gr. 1.26 in the proportion of their molecular weights (60:92) and the reaction carried out at a high temperature of 135 to 140 degrees (Johnson and Hovey method).

Elsewhere in his manual, in a discussion of the common papermaking vegetable fibers, Bromley further reports an interesting application of glycerine in cotton color reactions. He notes that iodine followed by treatment with a solution containing two volumes of glycerine, one volume of water, and three volumes of strong sulphuric acid colors cotton blue. Using the same ingredients but reducing the proportion of sulphuric acid, the solution will produce a brown stain.

From these first steps in manufacture to the bursting test is a far reach, but here too glycerine has its use in the Mullen tester. In this test, which exerts a resilient surface pressure on a circular rubber diaphragm over which the paper is clamped, the pressure is operated by a piston working against the rubber diaphragm through the medium of a glycerine-filled chamber.

It is essential that every manufacturer be able to determine exactly the constituents of a given paper. A prospective customer may submit a sample

for estimate, or, for other reasons, it may be desirable to match a certain paper. In view of the steadily increasing use of glycerine, therefore, a characteristic test for this product is of interest. The following delicate but entirely characteristic test is recommended by Bromley to detect the presence of glycerine in a given paper sample.

Bromley states that an aqueous solution of the glycerine is required for satisfactory performance of the test, pointing out that its complete extraction and concentration presents considerable difficulty on account of the volatile nature of solutions of glycerine upon being heated.

As the best method of extraction, therefore, he recommends taking a weighed quantity of the paper, say five gms., and dividing it into five equal portions, putting a portion into each of five beakers and just covering with distilled water. The portion in the first beaker is then warmed at a temperature not exceeding 80 degrees after which the extract is poured into the second beaker.

The contents of the first beaker are again extracted and the liquid poured off into the second, from which the contents have first been transferred to the third vessel. This process is repeated successively with all the beakers, after which the whole of the glycerine will have passed into solution.

For the test, to 5 cc. of the glycerine solution are added 5 cc. of a weak (½ per cent) solution of borax and then a few drops of a solution of phenolphthalein in alcohol. In the presence of glycerine, Bromley states, a colorless solution is obtained which becomes red on warming and colorless again on cooling.

On the basis of glycerine's proven value as an essential raw material in the paper industry, there is good reason to believe its usage will become still more extended as scientific research continues and individual manufacturers are interested to experiment further in the practical applications of glycerine in the new products which are constantly being developed.

Reviewing briefly the properties which have stimulated its importance in pulp and paper manufacture, glycerine, also known as glycerol, is a clear, colorless to pale yellow, odorless, viscous liquid. It is considerably heavier than water with a specific gravity of 1.260 at 20 degrees C., and has a low solidifying and high boiling temperature. In addition to its essential characteristics of absorbing and retaining moisture to a high degree, it is soluble in water and alcohol, and in it a great number of substances are soluble, which greatly adds to its versatility.

For industrial use it is obtainable in various grades—chemically pure, industrial pale straw, industrial white, etc., according to the purpose for which it is required. Chemists point out that formulas containing glycerine have a definite advantage, since preparations made with this fluid do not evaporate or turn rancid.

Yankee Dryer Surface Repaired by Metal Spraying

H. B. RICE, Vice President
Metalspray Company, Inc.

METAL spraying in the paper industry is unique in that one of the largest machine elements ever repaired by this process was the building up of the eroded surface of a huge dryer.

About 10 years ago a Yankee paper machine was installed in a California plant for the purpose of producing 10-lb. fruit wrapping paper. The cast iron dryer on this machine is 12 feet in diameter by 11 feet 4 inches long and is operated at a temperature of 175-200 Fahr. using 30 lb. steam pressure. This dryer was operated for several years with a stationary doctor which, of course, did not clean the extreme edges of the dryer. As a consequence, foreign matter of an abrasive nature was picked up by the felts and eventually eroded the surface of the dryer about 6 inches in from each edge. Over a period of several years of operation with the stationary doctor these edge areas became rough and worn to a depth of as much as one-eighth inch. Consequently, the edge areas of the felts became worn and damaged within two or three weeks after installation of new felts, and the width of the paper had to be reduced accordingly. This condition not only was expensive in the replacement of felts but cut down on the production of paper, since the full width of the paper could be maintained for only two or three weeks after new felts were installed. Although the stationary doctor was replaced by an oscillating doctor two or three years ago, this could not correct the condition but only prevented further damage of this type to the dryer.

The plant management had given serious consideration to this problem for some time. It was most anxious to eliminate the excessive cost of felt replacements and to increase the width of the paper not only so paper production would be increased but so that it would be unnecessary at times to trim to such a large extent. These worn edges reduced the width of the paper to a non-uniform size and it was frequently necessary to trim to an unusual extent in order to produce the paper sizes ordered.

The two worn end areas were approximately six inches wide, extending the entire circumference of thirty-eight feet, and varied from one-sixty-fourth to one-eighth inch in depth. These surfaces were quite rough and in no respect uniform. The only means of repair at first suggested was the grinding of the entire surface to obtain a uniform size over the full dryer width. The highly polished character of the dryer is vital to the uninterrupted production of this type of paper and it was improbable that this surface could be duplicated by local concerns.

Methods of filling up the worn areas were given consideration. Although it might have been possible to fill the low spots with some composition or semi-metallic material, it was thought such a repair would be unsatisfactory and might give but a short period of service. It was important that the metal deposited resemble the base metal in density and hardness. Every known method of accomplishing this purpose presented serious objections, with the sole exception of metal spraying. This process had been used for several years in similar plants in the building up of bearings, shafts, sleeves, and almost all types of worn areas on machine elements, with excellent results. However, no circumferential areas of this size had previously been sprayed. Many pump plungers, printing press cylinders, internal combustion pistons, and other forms of reciprocating machine elements had been metal sprayed successfully and had given excellent service, but no diameters exceeded four or five feet.

Many case histories were available showing satisfactory service over periods up to five years on machine elements, involving almost every known type of service. Some of these included reciprocating pump plungers operating at pressures up to 3000 lb. per square inch, and temperatures up to 1000 Fahr.; metal sprayed bearings of fifteen inches diameter and weighing 13 tons used in the service of rock crushing; fifteen inch diameter shafts used to propel submarines when submerged, and internal combustion pistons up to thirty inches diameter. The service problems involved in the spraying of this dryer were in no respects as severe and the only exception was the large size.

In view of the excellent service records of the many other smaller forms of machine elements which had been sprayed it was decided to use this process in re-

pairing the large dryer. It was only necessary to meticulously follow the many procedures which had been developed and which were responsible for the exceptional success of the various sprayed items. The tool carriage was removed from a shaper in the machine shop and installed against the side of the dryer, as illustrated. Hand operated worm feeds permitted movement of the tool rest in the necessary directions. A lathe tool was used to reduce the areas to a uniform size and a special type of rough thread cut was then applied to the areas to be sprayed to develop the proper bond. A metal spray gun using one-eighth inch diameter rods was installed on the tool rest with the nozzle five and one-half inches from the surface to be sprayed.

Cold rolled or low carbon steel when sprayed resembles cast iron in many respects, particularly as to density and hardness. Therefore, rods of one-eighth inch diameter by twenty feet long were used in a continuous spraying operation to build up these areas. As the setting-up of the tool carriage required several hours, one side of the dryer was tooled, sprayed, and machine finished in one continuous operation and the tool carriage then moved to the other side and the operation repeated. It required 105 pounds of cold rolled steel, 1150 cubic feet of oxygen, 1075 cubic feet of acetylene, and 19 hours elapsed spraying time to build up one side of the dryer. The gun was replaced by a lathe tool to clean up the sprayed deposit. In view of the large diameter the surface was built up one-sixteenth inch oversize for machine finishing. The dryer roll was operated at approximately 2 r.p.m. for both spraying and machining. The second side required but 96 lb. of cold rolled steel, and comparative amounts of oxygen, acetylene and spraying labor. The only other material used was compressed air at 50 cubic feet per minute and 60 pounds pressure. The total cost of the job, including all materials and labor, was less than $500.

No effort was made to machine finish the sprayed surface to compare in smoothness with the adjoining surfaces of the dryer. To do this it would have been necessary to grind. The resultant machine surface was reasonably smooth but was left slightly oversize as it was thought that the oscillating doctor would polish to correspond with the balance of the dryer surface after a few weeks' operation. The dryer has been in operation over six months, fulfilling all expectations. The cost of the repair was saved almost immediately in the increased production of paper and the long service life obtained from the felts.

The paper plant operating this dryer handled all of the machining and most of the spraying after having the customary one day instruction in gun operation. Thereafter, this tool was used in building up calender roll bearings, which application is becoming quite standard in the paper and printing industry. When bearings of this type score they may be restored to original size by spraying with high carbon steel which obtains a hardness of 400 Brinell and a much longer service life. The cost of this operation is usually less than by the previous methods of repairing which involved the installation of a sleeve or of an oversize babbitt bearing.

In view of the fact that the various rolls and cylinders used in the papermaking industry must have a uniform, accurate and highly polished surface it is believed the process will be used extensively in filling in, building up, and restoring to original size, the many flaws, dents, and imperfections which often develop in these surfaces.

Steam Flow - Air Flow Meters

E. B. BOSSART
Mechanical Engineer
Bailey Meter Company

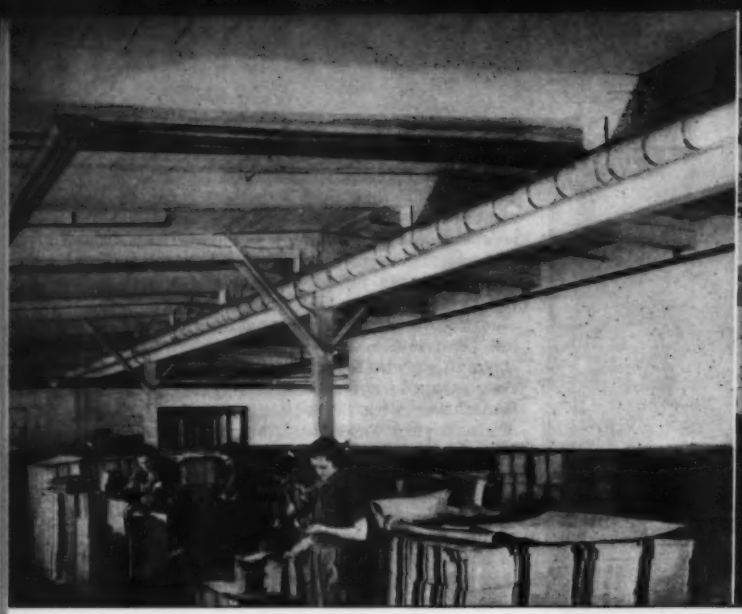
THE comments of W. F. Schaphorst in the July, 1936, issue of THE PAPER INDUSTRY to the effect that many boiler operators immediately become confused when CO_2 is mentioned prompts the writer to point out that carbon dioxide recorders are unnecessary when Steam Flow-Air Flow boiler meters are used. Boiler meters do not involve the use of chemical solutions nor do they require various interpretations of results when coals are changed. Their operation simply involves the adjustment of fuel and air by the fireman so that the records of steam flow and air flow coincide one upon the other. This relation holds good for all boiler ratings even though conditions may require a larger percentage of excess air for the higher ratings than for the lower ratings. In cases of this kind, the mechanism is adjusted so that the actual percentage of excess air will increase with rating, although the pens are in coincidence at all times.

Primarily it is not CO_2 which the boiler room attendant is interested in, but the amount of excess air present in the furnace because high CO_2 may not be a sign of good combustion, for there may be CO present. If the proper amount of excess air is present, CO is present in such small quantities that it may be disregarded. A low CO_2 always means low efficiency, but a high CO_2 does not always mean good efficiency, thus we need something other than the CO_2 meter to give us the complete story of operating conditions inside the furnace.

It has been shown that the amount of air necessary to liberate 10,000 B.t.u. is practically constant no matter what the B.t.u. content of the coal burned happens to be. The heat liberated by the combustion of the fuel in the furnace is measured by the steam output or rating of the boiler.

Knowing these two factors, it may be readily seen that the air flow can be adjusted so that when the proper amount of excess air is present for efficient combustion, the air flow and steam flow pens will be together. Should there be too much excess air, the air flow will read higher than the steam flow and with insufficient air, the air flow will read lower than the steam flow.

This gives the boiler attendant the complete story of what is happening in the furnace at a glance, and if conditions are wrong he knows at once what steps should be taken to correct them.



Careful inspection of cartons is important to avoid comebacks. The strictest housekeeping standards and a bright, clean and airy atmosphere assure thorough workmanship from employees

Cut and embossed cartons are brought in on platforms, fed through the gluing machines, and after an inspection are delivered down an aisle at the opposite end of the room

White Paint Increases Production Efficiency

GOOD plant layout, modern and efficient equipment and ideal housekeeping standards are determining factors in the success of paper mills or any other industry. The part paint plays in achieving a clean, bright atmosphere, and ideal seeing conditions has long been recognized by time and motion study engineers; yet maintaining these conditions has remained a problem.

Producers of several million cartons daily in which to wrap your favorite drug and food items, the Fort Orange Paper Company, Castleton on Hudson, N. Y., is a model in good housekeeping standards, and its methods of paint maintenance, based upon a paint standardization plan, have proven both practical and economical.

All wall and ceiling surfaces are finished with a high grade mill white applied over a coat of varnish type primer and sealer. Where chemical fumes are present, or where heat is excessive, a fume-resisting white has been adopted which does not itself discolor, and permits washing off any discoloring deposits.

If surfaces are subject to moisture seepage, the application of a porous-type, flat white without an undercoater, gives the advantage of whiteness and avoids peeling. Metal surfaces, such as trusses and sash, are first primed with a lead chromate type metal primer. This finish inhibits rust, where moisture condensation is excessive. In this way it is possible for the Fort Orange Paper Company to enjoy the advantages of the added light reflection value and improved appearance of white paint, and also minimize the waste from rejects and retarded production where poor seeing and working conditions prevail.

(Photos courtesy The Sherwin-Williams Co.)

Ample light from windows and reflected from the white painted walls and ceilings facilitates setting, inspection and operation of the presses in this well-planned and well-kept plant

Printed sheets are cut and creased in this department. Slugs are hammered out from stacks of cut cartons. Production efficiency and worker morale are improved by good painting practice

International Technical Meeting a Huge Success

THE international meeting of the Technical Section of the Canadian Pulp and Paper Association and of the Technical Association of the Pulp and Paper Industry, which had been looked forward to for many months, is now a thing of the past, but it will linger long in the memory of all who attended as the finest get-together that it was ever their privilege to attend. Everything was perfect—the committee that organized the meeting had planned carefully even down to the smallest details to insure the fullest comfort and enjoyment of all. Even the weather was kind and furnished favorable atmospheric conditions such as had not yet been experienced this year.

Some three hundred members and friends of the two associations, including a large number of ladies, devoted five days (except for two brief sessions on Monday August 3 and a couple of hours on the last day of the trip) to admiration of the wondrous grandeur of the St. Lawrence and Saguenay Rivers, visiting a few examples of man's ingenuity in turning to his benefit a very small proportion of the resources which nature has so lavishly distributed in this marvelously rich region, and above all relaxing, forgetting all about business troubles and worries, and enjoying themselves among surroundings which cannot be surpassed anywhere.

Review of Canadian Newsprint Industry

The business session opened at 10:30 A. M. on Monday August 3 with the presentation of a paper by R. S. Kellogg, Secretary of the News Print Service Bureau, on "Twenty-Four Years of Canadian News Print." Mr. Kellogg explained that he had selected 1913 as the date for beginning his historical review of the Canadian newsprint industry for the twofold reason that only from that date are complete yearly statistics available and that the removal of the United States duty on newsprint paper in that year started development of the Canadian newsprint industry that culminated in an expansion that is probably unparalleled in any industry anywhere in the world. Canada manufactured 350,000 tons of newsprint in 1913; in the short space of nine years the production had trebled and passed the million-ton mark, and kept on increasing at an ever-increasing rate till it touched a peak of 2,729,000 tons in 1929 (the United States reached its peak output of 1,680,000 tons in 1926). Then came the depression, and with it a falling off in newsprint output; but this was merely temporary—by 1935 the production had passed slightly ahead of the previous all-time high, and according to present indications a new high record of over 3,000,000 tons, or nearly 40 per cent of an estimated world output of around 8,000,000 tons, will be set by the Canadian mills in 1936.

The increase in tonnage produced unfortunately has not benefited the mills as it should on account of the unreasonably low price for this commodity at present prevailing on world markets. Whereas in 1924 Canada produced 1,353,000 tons of newsprint having a value of some $100,000,000, the somewhat more than three millions tons expected to be produced during the present year will have approximately the same value, or, as Mr. Kellogg put it, "On the basis of the 1924 price we might say that Canada is turning out 1,700,000 tons of newsprint paper for nothing in 1936."

But he closed on an optimistic note, remarking that, not only were there no formidable substitutes for pulp and paper products in prospect, but many new uses were yet to come as a result of invention and discovery in a rapidly changing world, and the day was close at hand when the services for the engineer, the chemist, the physicist and the electrician would be more than ever needed for technical control.

Canadian Association President Speaks

R. A. McInnis, general manager of Anglo-Canadian Pulp and Paper Mills, president of the Canadian Pulp and Paper Association and a past chairman of the Technical Section, briefly addressed the meeting and stressed the indispensability to the industry of adequate fundamental research. He stated that the industry (apart from individual companies), which at present has an output valued at some $100,000,000 yearly, is spending annually the ridiculously small and insignificant sum of $15,000 on research; and it had been impossible, in spite of his best endeavors and pleading, to obtain a larger appropriation. At his request, a committee of the Technical Section had prepared a three-year research program, the accomplishment of which would necessitate an expenditure of $50,000 a year. He appealed to the technical men working in the mills to put forth their best efforts to sell the idea to their respective managements, because if the industry persisted in its present course it would ultimately be forced into a situation even more serious than its present one.

High Speed Paper Machines

W. T. Bennett, resident engineer at the Gatineau mill of Canadian International Paper Co., next presented a paper on "The Development of High Speed Paper Machines." First explaining that the term "high speed" paper machine was just relative and designated machines operating at or near the highest speed attained at the present time, he stated that, if we wished to determine when the first high speed machine was built we should go back at least seventy years, for the machines of 1867 were basically the same as our present machines. He then proceeded to describe the development of the paper machine and the successive mechanical improvements and refinements that have rendered possible progressive increases in speed, and finally discussed present and probable future developments.

Discussion

George Bearce, of Maine Seaboard Paper Co., started the discussion by asking Mr. Bennett whether he had had any experience with the latest developments in roller bearings, particularly as applied to paper machine dryers. Mr. Bennett replied that personally he would rather stick to the plain bearings for the dryers; it was true that the starting load on the dryer motors was lower with anti-friction bearings, but the operating load was the same on both types of bearings and the plain bearings were less troublesome. He then promptly countered by suggesting that Mr. Bearce should have something to say on the subject, as he had had considerable experience with roller bearings on the dryers when he was managing the Dalhousie mill. Mr. Bearce stated that, while he had encountered many failures of roller bearings on paper machine dryer service, he was by no means ready to throw out roller bearings entirely, as he considered that the manufacturers should be able to perfect them so as to render them suitable for this work. He thought that at least part of the trouble was due to the high temperature on the back side of the machine, and suggested as one important improvement that provision be made in the bearing for allowing for the expansion and contraction of the dryer rolls over a temperature range extending from atmospheric to operating temperature.

Lorne C. Anderson, of Ontario Paper Co., referring to one of the statements in Mr. Bennett's paper, questioned whether the use of 26 inches of vacuum at the suction rolls would improve machine operation sufficiently to justify the expense it would involve. The matter should be investigated thoroughly before going ahead with it on the paper machine; and if this were done it might be found that the work could possibly be effected more satisfactorily and more simply by means of one or more press rolls over the suction couch.

A. Grant, of Pulp and Paper Mill Accessories, Ltd., wanted to know whether the use of rubber rolls to press the sheet against the dryers might not improve

the finish. Mr. Bennett stated that this had been tried out. It was found, however, that the dryer coated up and could not be kept clean by means of doctors; moreover, other operating difficulties were encountered and no effect on the sheet was apparent, so that the rubber roll was finally taken out.

Dr. W. Boyd Campbell, of the Forest Products Laboratories of Canada, raised the point as to whether suction or pressure had more effect on water removal. The removal of water at the end of the wire near the breast roll could be studied on the sheet-making machine, as the mechanism of drainage through the wire was the same or very similar in both cases; but further down the paper machine wire the effect was different from that on the sheet-making machine. Another point of interest in this connection was how much compacting was desirable and what effect, if any, it had on drainage. As regards the effect of suction, there could be no doubt that drawing air through the sheet removes some water, but it would be very interesting to obtain quantitative information on this point.

L. C. Anderson was of the opinion that the use of pressure would not damage the sheet, but would harden it and improve operating conditions. George Bearce was of the same opinion, and stated that it was important to harden the sheet sufficiently to enable it to be transferred to the first press. J. B. Gough, of Price Bros., related a rather interesting experience encountered at the Laurentide mill in the early days of suction presses when it was found one day that the suction pump was down without anyone knowing it, and apparently nobody had noted anything wrong with the sheet. Personally he did not think that the use of higher vacuum than that at present employed would remove much more water.

Groundwood Pulp for High Speed News Machines

L. E. Kendall, of the Gatineau mill of Canadian International Paper Co., presented a paper on "Characteristics of Groundwood Pulp for High Speed News Print Machines." Data from units running at various speeds indicate that higher speed machines will require a higher freeness test on the groundwood pulp furnish. The only data available about the classification of pulps for use at different speeds does not indicate any satisfactory distinction between them, but other tests on the same pulps indicate that higher tests of freeness, burst, and tear have been used at higher speeds. It would appear that higher freeness and strength tests should give pulps that will be satisfactory for higher speeds. It is not clearly indicated how the higher-speed pulps differ physically from those used at slow speeds; it is suggested that they should be longer and more slender, but it is doubtful whether they should be more fibrillated. Mr. Kendall concluded by stating that, in his opinion, the only means at hand for producing these pulps appear to be a closer refinement in carrying out the groundwood process and a more expert performance by the operators producing the pulp.

Sulphite Requirements for High Speed News Machines

In the absence of R. T. Steedman, of Anglo-Canadian Pulp and Paper Mills, Ltd., A. A. Scott, of the same organization, read his paper on "Sulphite Requirements for High Speed News Machines." The author did not present any experimental data, but presented his ideas as to the qualities which should be possessed by sulphite used in a news furnish for high-speed machines. From a consideration of average sulphite stock conditions in existing high-speed news mills he reached the conclusion that the most important factors are those connected with the characteristics that lead to uniformity, strength, and absence of pitch.

City of Montreal Is Luncheon Host

Luncheon for the members and their friends attending the convention was provided by the City of Montreal, with Mayor Camillien House as guest of honor. This function was characterized by a number of after-dinner speeches that were brief and to the point. His Worship extended official civic welcome in his own jocular and inimitable manner. He jokingly wondered why he had been invited as, during the thirteen years that he has been in politics, he had frequently suggested that newspapers should all be suppressed because of their stories, and he might therefore be thought to be trying to put the newsprint industry out of business. On learning that many chemists were to be present, however, he had accepted the invitation in the hope that he might ingratiate himself with them and that they might ultimately succeed in transmuting base metals into gold, which would enable him to solve the vexatious financial problems facing the City treasury. President G. N. Collins, on behalf of T. A. P. P. I., presented the Canadian Technical Section with a beautiful banner in honor of the first international meeting of the two associations. R. A. McInnis, president of the Canadian parent association, spoke very optimistically of the future of the pulp and paper industry. He said that, barring a European conflict, the industry was on the verge of a marvelous era; research has endowed the industry with modern powers of alchemy which will enable it to convert cellulose—if not the base metals, as hoped for by His Worship—into gold. More and more would be heard about cellulose, and the chemists were going to find out that they knew less about it than they ever dreamed of. Its uses were tremendous, and every man in the industry was facing wonderful opportunity for himself, his company and his country.

C. B. Davies Given Weldon Medal

The Weldon Medal, offered annually for the best paper presented at the annual meeting of the Technical Section, was this year awarded to C. B. Davies, of the Sault Ste. Marie mill of Abitibi Power and Paper Co., for his work on Control of Sulphur Consumption in the Manufacture of Sulphite Pulp, and was officially presented to him on behalf of the Section by A. L. Dawe, the donor.

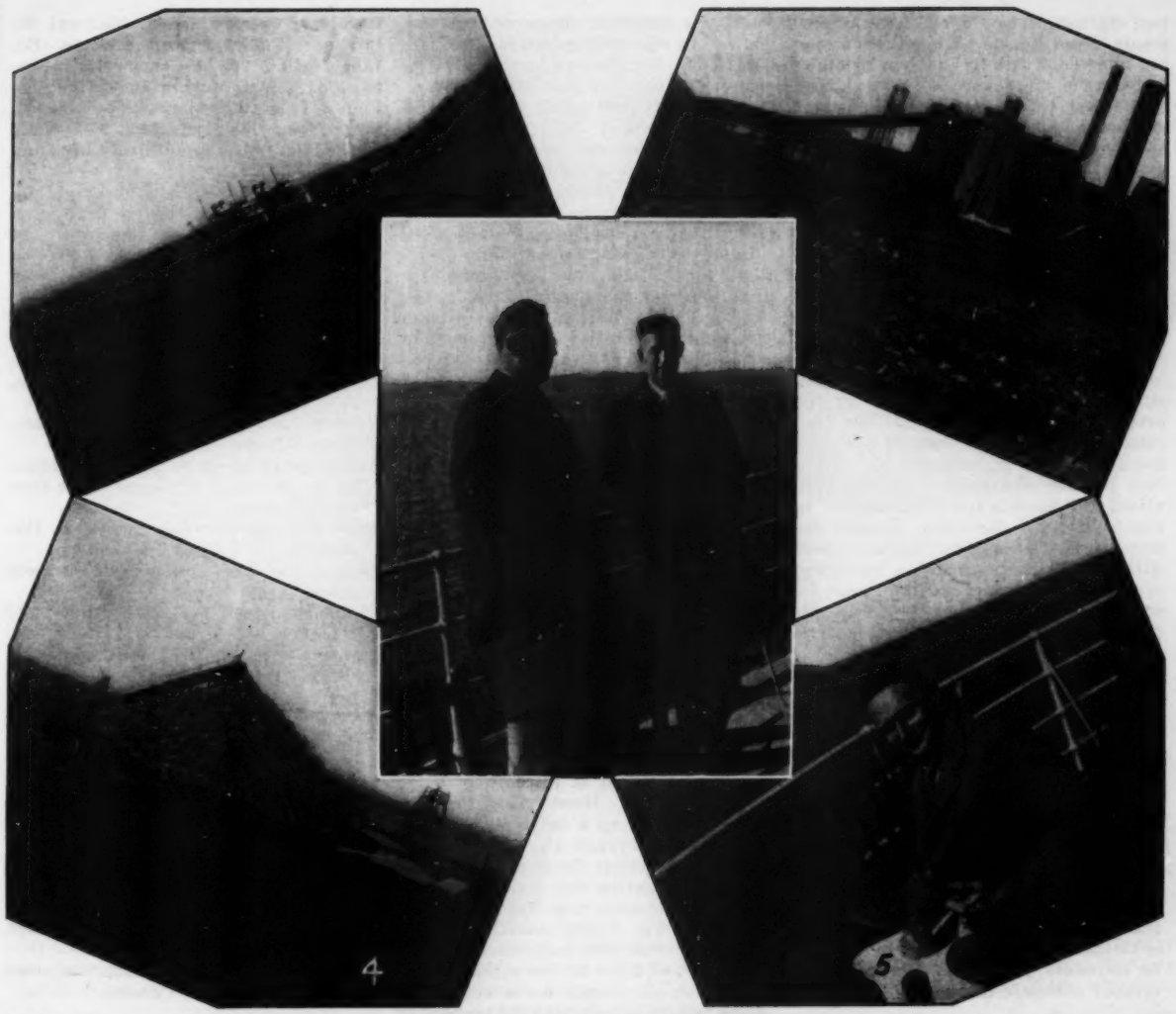
The Minton Dryer in the News Print Industry

The afternoon session opened with a paper on "The Minton Vacuum Dryer in the News Print Industry." In the first part of the paper J. B. Gough, of Price Bros., described the machine and its more interesting operating characteristics, dealing more particularly with the air-tight seals through which the sheet was led into and out of the dryer casing, and with the thermal efficiency of vacuum drying. In the second portion of the paper Dr. H. S. Hill, Director of Research for Price Bros., described at some length the quality of vacuum dried paper. Early in the work with the Minton vacuum dryer it became apparent that newsprint dried thereon possessed a somewhat distinctive character and showed up this character in practically all of the known paper quality tests. As compared with newsprint made on regular type dryers, and under otherwise similar operating conditions, vacuum dried news from a given stock was found to be brighter, more opaque, softer, more porous, more absorbent both to oil and to water, smoother as tested by the Bekk or similar type instruments, and was found to show a somewhat lower Mullen and tensile strength test, a slightly higher tear test, about equal stretch at the breaking load, and a slightly higher stretch at lower loads. Each of these relationships between vacuum and atmospheric dried newsprint may vary in degree depending on the character of the furnish and on certain machine conditions, particularly at the calender; but these quality trends always persist, and furthermore they may be verified in detail with laboratory-scale drying experiments using standard hand sheets and controlled conditions. The existence, therefore, of what may be termed a typical vacuum dried effect on newsprint quality may be accepted as an established fact.

Discussion

Mr. Maddison, of Champion Paper and Fibre Co., was struck with the statement that there was no back drive rope and wanted to know the reason why. Mr. Gough explained that it had been found unnecessary. Ogden Minton added that no trouble was experienced in threading the paper through the dryer—the lead strip was placed between two strips of cardboard and passed through the inlet seal, and the air jets attended to the rest.

In reply to a question as to the speed that could be attained with the Minton dryer, Mr. Gough said that at Kenogami and River Bend they had never been run above 1,000 feet per minute, and were generally run at between 950 and 980 feet per minute. He did not think that



(1) S. S. Quebec (right), S. S. St. Lawrence (left) moored at Tadoussac. (2) Sulphite mill at River Bend. (3) G. N. Collins (facing camera), president of T.A.P.P.I. (4) Drum barkers and block pile, Anglo mill, Quebec. (5) Dr. H. W. Johnston, in charge of the Pulp & Paper Division of the Forest Products Laboratories, Montreal, with Mrs. Johnston at the right

the Minton dryers on the machines in the Price Bros. mills could be run economically at speeds much higher than 1,000 feet per minute. The actual reason for not running them any faster was that this was about the limit of the drying capacity of the machines as installed; and moreover the ingoing and outgoing seals imposed a limitation that just about reached its limit at this speed.

J. A. DeCew, of Process Engineers, Inc., was intrigued at Dr. Hill's statement that the vacuum dried paper was somewhat weaker than the atmospheric dried paper. Mr. Gough replied that this was just a statement of an observed fact, for which no explanation had as yet been found. Laboratory experiments had been started to try to solve the problem, and the results obtained so far indicate very definitely that temperature is probably the most important factor; but differences in strength of individual fibers and differences in the association of fibers in vacuum dried and atmospheric dried papers are probably also contributory factors. Mr. DeCew then asked whether, if a Minton dried sheet had exactly the same formation and density, it would be better than an air-dried sheet. Mr. Minton replied that an air-dried sheet could not be compared with a machine dried sheet, be it vacuum or atmospheric dried, because the latter was dried under tension while the former was not. As to the comparison between vacuum and atmospheric dried paper, it should be remembered that, though Minton dried paper had a lower bursting and tensile test, it had a high tear test; it is a well known fact throughout the industry that the tear and Mullen curves always cross, so that if they succeeded in raising the Mullen test, the tear test would inevitably drop. Mr. Gough added that the Mullen and tensile tests are the only characteristics which are lower for the vacuum dried than for the atmospheric dried news; the fact that they have never received any complaints regarding Minton dried paper and that some publishers are even willing to pay a premium to get it, is pretty good proof that it does not result in poor running qualities on the printing presses.

Paper Production Control

Dr. Louis T. Stevenson, of New York, next presented a paper on "Forecasting Paper Production." A good forecast for production control purposes in the paper industry is composed of three main elements: (1) general business conditions, (2) business conditions in the particular branch of the paper industry under consideration, and (3) the particular business of the individual producer in question. In a previous paper, presented at the T. A. P. P. I. meeting last February, Dr. Stevenson had shown that total paper production generally varies with industrial production. In the present paper he gave consideration to forecasting industrial production on the hypothesis that this will be equivalent to forecasting total paper production. Bradstreet's Index of wholesale prices tends to precede slightly both up and down movements of industrial produc-

tion during periods when natural economic forces operate. When these forces are interfered with by inflation or other factors, the movement of new machine tool orders tends to precede industrial production in declining from the peaks and to coincide with or anticipate industrial production at the lows of the movements. All branches of the paper industry, however, do not act alike. For example, the behavior of production of two different branches of the paper industry in the United States, namely, newsprint and paperboard, differs considerably; production of paperboard has a distinct upward trend and tends to move with total paper production, while newsprint production seems to have stabilized at about 65 per cent of the average 1923-1925 production. The forecaster for production control purposes needs this type of information in addition to that obtainable from the individual mill records and organization. In conclusion, Dr. Stevenson pleaded for better co-operation of the manufacturers with their trade association statistical organizations to the end that accurate and consistent data may be available for forecasting for production control purposes.

T. Linsey Crossley, of Toronto, suggested that, in the case of newsprint, a better idea of conditions might probably be obtained by considering consumption rather than production. Dr. Stevenson replied that the result would be entirely misleading to the production forecaster; for, while consumption has been increasing steadily, except for a temporary recession from 1930 to 1935, production seems to have ceased expanding and to have become stabilized at a fairly constant level, indicating that other factors counterbalance the inducement to increased production favored by increased domestic market.

Party Boards S. S. Quebec for Mill Visits

After the business session the party boarded the S. S. Quebec, of the Canada Steamship Lines, and sailed down the river, arriving at Quebec early next morning. The whole day was spent in the old capital of New France, and varied entertainment was provided both for the ladies and the men. Many of both sexes availed themselves of the opportunity to try out the courses of the Royal Quebec Golf Club and of the Kent House. Others visited the world-famous shrine at Ste. Anne de Beaupré, toured the Island of Orleans, or went sight-seeing and shopping through the historic old city of Quebec.

The more serious-minded of the party spent the better part of the morning visiting the 540-ton newsprint mill at Limoilou, a suburb of Quebec, of the Anglo-Canadian Pulp and Paper Mills, Ltd. Unfortunately, line trouble due to a storm which occurred on the previous day had burned out ten of the twelve 2,600-horsepower grinder motors, so that the mill was running at a very much reduced rate since the four grinders in operation could supply groundwood to only one of the four paper machines. This was sufficient, however, for the visitors to see how operations are carried out in this modern and highly efficient mill that has pioneered many of the recent innovations in the pulp and paper industry.

In the afternoon a small party paid a visit to the interesting insulating board mill of Donnacona Paper Co., Ltd., at Donnacona, about thirty miles up the river from Quebec, where they were given the opportunity of seeing in operation a huge board press, that is probably unique in various respects, as well as the Coe dryer. A few of the almost innumerable decorative effects obtained with pulp board were most effectively displayed in two rooms made entirely of Donnacona board.

Back on board for dinner, and a few hours' sailing brought the party to Murray Bay, where the boat moored for the night. On the following morning enthusiastic golfers were given the opportunity of proving their skill on the Murray Bay course, famed for the unsurpassed beauty of its setting. Here it was that the members of the Canadian Technical Section competed against one another for the McInnis trophy, while they also put forth their best efforts to show their collective superiority over the members of the Woodlands Section.

At 2 P. M. the "Quebec" cast off and continued her journey down the St. Lawrence to Tadoussac, nestling in a sheltered bay just at the mouth of the Saguenay River. Here a short stop permitted of making a brief visit of this quaint little French Canadian village, which is the oldest European settlement in North America and which possesses the oldest mission church on the Continent. It was highly amusing to see youngsters and even mere tots along the roadside and down on the beach making very laudable, though not always melodious, efforts to entertain the visitors by singing well-known French Canadian songs.

The journey continued up the Saguenay River for some 60 miles, to Bagotville, at the head of Ha Ha Bay. The wild and rugged beauty of the Saguenay River as it winds between towering hills and cliffs which frequently rise abruptly out of the water is a sight never to be forgotten, and exclamations of wonder and admiration were heard on all sides. Unfortunately, night fell some time before the boat reached the two mighty capes, Trinity and Eternity, which rise like giants above the surrounding hills.

Golf Prizes Presented

In the course of the evening, numerous prizes donated by generous friends of the industry were awarded to the golfers. The following firms had supplied the prizes: Ayers Ltd., Bird Machine Co., Cameron Machine Co., Canadian Ingersoll-Rand Co. Limited, Canadian Vickers, Capital Wire Cloth and Manufacturing Co. Ltd., Crane Ltd., Downington Manufacturing Co., Eastern Dairies Ltd., B. F. Goodrich Co. of Canada Ltd., F. C. Huyck and Sons, Kenwood Mills Ltd., Krebs Pigment and Color Corp., Mason-Neilan Regulator Co. and Mason Regulator Co. of Canada, National Oil Products Co., Northern Electric Co. Ltd., Norton Co. of Canada Ltd., Norton Co., Paper Makers Importing Co., Pulp & Paper Mill Accessories Limited, Shawinigan Chemicals Ltd., J. Spencer Turner Co. Ltd., United Steel Corp., and Waterous Ltd.

E. B. Wardle, of the Laurentide Division of Consolidated Paper Corp., won the McInnis Trophy for the lowest net score of Canadian Technical Section members. The other men who won prizes were as follows:

Tuesday morning play:

First low gross—A. J. Campbell, American Cyanamide and Chemical Corp., New York.
Second low gross—G. E. Puett, Manchester Board and Paper Co.
Third low gross—J. S. Babbitt, manager of the Montreal Division of the Gair Co. of Canada.
First low net—Edward Ahearn, R. Hoe and Co.
Second low net—E. B. Wardle, Consolidated Paper Corp.
Third low net—L. L. Griffiths, Heller and Merz.
Lowest score for the first nine—D. B. Chant, Ontario Pulp and Paper Makers' Safety Association.
Lowest score for the second nine—Ed. Bearce, Chillicothe Paper Co.
Lowest score for any single hole—W. H. Monsson, Hooker Electrochemical Co.
Most nines—J. B. Gough, Price Bros.
Most sevens—L. K. Barker, Richmond Hotel, Inc., Richmond, Va.
Highest score for any single hole—F. H. Lovenberg, Mathiesen Alkali Works, tied with K. M. Thorsen, Central Paper Co., Muskegon, and with Wm. Weed, Electro-Bleaching Gas Co.
Most pars—J. N. Stephenson, *Pulp and Paper Magazine of Canada.*

Tuesday afternoon play:

Low gross—A. Grant, Pulp and Paper Mill Accessories.
Low net—J. N. Stephenson, *Pulp and Paper Magazine of Canada.*

Wednesday morning play:

First low gross—G. E. Puett, Manchester Board and Paper Co.
Second low gross—Jos. Dow, Castle and Overton.
First low net—L. W. Crouse, Penick and Ford.
Second low net—P. T. Wainwright, Don Valley Paper Co.
Third low net—R. W. Ball, Krebs Pigment and Color Corp.
Low gross for the first nine—A. J. Campbell, American Cyanamide and Chemical Corp.
Low gross for the second nine—W. S. Wills, Wallace and Tiernan.
Most pars—N. W. Semple, Canadian International Paper Co.
Lowest score for any single hole—C. E. Curran, Forest Products Laboratories, Madison, Wis.
Highest total score—Ed. Turner, International Nickel Co., tied with H. G. Hickley, West Virginia Pulp and Paper Co.

(6) Dr. C. E. Curran, in charge Section Pulp and Paper, Forest Products Laboratory, Madison, Wis. (7) Dr. H. J. Rowley chairman of the Canadian Technical Section, and Mrs. Rowley. (8) T. A. McElhanney, superintendent of the Forest Products Laboratories of Canada, Ottawa. (9) R. G. Macdonald, secretary of T.A.P.P.I., and his secretary, Miss Selma Blair. (10) Dam and power plant at Ile Maligne

Highest score for any single hole—W. E. Greene, W. E. Greene Corp.

Most eights—K. M. Thorsen, Central Paper Co., tied with Geo. Bearce, Maine Seaboard Paper Co.

The ladies had not been forgotten, and numerous prizes had been provided for them also. The happy winners were as follows:

Low gross—Mrs. John Traquair.

Low net—Miss Franklin, Chillicothe.

Low gross for the first nine—Mrs. C. B. Davies.

Low gross for the second nine—Mrs. E. F. Bearce.

Low net for the first nine—Mrs. B. R. Burland.

Low net for the second nine—Mrs. D. B. Chant.

Low gross for only one nine—Mrs. Larry Lynch.

Second low gross for only one nine—Miss Helen U. Kiely, American Writing Paper Co., Holyoke, Mass.

Finally, it was announced that the Woodlands Section had wrested the Gordon Fleck Trophy from the Technical Section.

Visit Price Bros. and Ile Maligne Power Plant

The members of the party were up good and early on Thursday, as a full program had been arranged. Boarding a special train at 9 o'clock, they went some fifty miles up the river to visit the River Bend mill of Price Bros. and Co., by far the most interesting features of which are the two first newsprint machines ever built with Minton vacuum dryers. The greater brightness of vacuum dried paper, mentioned in the paper delivered by Dr. Hill on Monday afternoon, was quite evident, even to a casual observer. A few minutes by railroad brought the visitors to the Ile Maligne plant where the Saguenay Power Co. develops half a million horse-power from the Grande Décharge of the Saguenay River.

Time passed rapidly, and it was a hungry crowd that sat down in the school house at River Bend to partake of the luncheon supplied by the Price company.

The next halt was at Arvida to visit the large electrolytic aluminum plant of the Aluminum Co. of Canada. The town, which has a population of a little over 2,000, has been laid out for a city of 50,000, as it is proposed ultimately to increase the present capacity of the plant tenfold. It is an outstanding example of the industrial value of cheap and abundant hydroelectric power, for here all raw materials must be imported from distant countries—bauxite from British Guiana, cryolite from Greenland, and petroleum coke from the Gulf of Mexico—but within about three miles of the plant is a 1,000,000-horsepower hydraulic power site which will furnish at low cost all the direct current required by the plant when it will have been fully developed to its projected capacity.

A few of the more enterprising ladies had accompanied the men on their somewhat arduous journey, but most of them had remained behind and whiled the time away with a little bridge and a motor trip to view a few of the numerous points of interest in the vicinity.

Party Boards Steamer for Return Trip

At eight o'clock, with everybody back on board, the S. S. Quebec started on its return trip down the Saguenay. The evenings on board were enlivened by the

strains of gay music. The Canada Steamship Lines had retained the services of an excellent dance orchestra and of the Saguenay Singers, a male quartette whose exceptionally fine rendition of old Canadian folk songs was greatly admired. And, of course, the old favorite "Alouette" was as popular as ever, and every night the poor little bird was conscientiously plucked from head to tail, everybody joining in under the leadership of the inimitable Jerry Shea.

Business Session on Return Trip

Just to remind the Technical Section and T. A. P. P. I. members that after all some business must be attended to even on the most enjoyable of conventions, a short session was held in the music room on Friday morning.

Lignin Research Comparisons

In a talk on "Contribution to the Knowledge of the Nature of Lignin Derivatives," Dr. Fritz E. Brauns, of the Institute of Paper Chemistry at Appleton, compared the results obtained by himself and Hibbert and co-workers with those recently published by W. Fuchs and by Freudenberg. The agreement noted in the results of these several investigators shows that it is possible, using always the same conditions, to obtain similar results in lignin investigations, and that discrepancies are due to the application of different experimental conditions.

Wood Structure and Growth as Related to Pulping Quality

Dr. C. E. Curran, Principal Chemist in Charge of the Pulp and Paper Section of the Forest Products Laboratory at Madison, Wis., explained in a most interesting manner the work being carried out under his direction on "Some Relations Between Growth Conditions, Wood Structure and Pulping Quality." The studies carried out on southern pine brought out very markedly the difference in structure and properties between springwood and summerwood, and the effects of these differences on the results obtained by the various pulping processes (mechanical, sulphite, sulphate).

Howard Kennedy, of the Woods Department of the E. B. Eddy Co., remarked that Dr. Curran was headed in the right direction in studying the variables in wood of the same species grown in the same area; but of course it was a pretty difficult proposition for the Woods Department to sort out wood according to species and growth conditions in the woods, and the problem of delivering such selected wood to the mill became even more difficult, not to say impossible, when the wood was river driven to the mill owing to mixing of the wood during driving.

Dr. Curran agreed with a remark of Royal S. Kellogg, Secretary of the News Print Bureau, that northern woods would show less differences in structure between spring and summer woods than do southern woods. He added that during the coming winter he intended to study the differences between butt, middle and top logs cut from the same tree

The Validity of a Patent

Charles W. Rivise next explained "What Constitutes Validity of a Patent." Taking a hypothetical case of an inventor having discovered an improvement to some part of the paper machine, he outlined in a semi-jocular, semi-serious manner the troubles and vicissitudes which he was liable to encounter from the time he filed his application right through the life of the patent (if it was granted), which led Fred Clark to remark that the speaker had brought out very well of what little value U. S. letters patent actually are.

Developments in Making Coated Paper

The meeting was brought to a close by a paper on "Developments in the Manufacture of Coated Paper," in the course of which W. Callighan, of Edgar Bros. Co., briefly outlined outstanding developments in the field of coated paper that have come to the attention of the members of the Coating Committee of Tappi.

Papers Presented by Title

In addition to the papers that were read, the following were presented by title only:

"Simplified Method for the Rapid Determination of the Available Chlorine Content of Pulp Bleaching Solutions," by Donald T. Jackson and John L. Parsons, of Hammermill Paper Co., Erie, Pa.

The method is essentially a slight modification of the Pontius method and consists in titrating a known volume of bleach solution with a standard solution containing 1.683 g. of potassium iodide, 50 g. of sodium bicarbonate and 2 g. of soluble starch per liter, until the solution turns blue due to the formation of starch iodide.

"The Liming of Digesters," by C. F. B. Stevens and W. H. Birchard, of Fraser Companies, Ltd., Edmundston, N. B.

Analysis of the deposit responsible for the liming of digesters showed that it consists principally of calcium sulphite. If present in a digester in large amount, it is probably a sign that the cooking temperature is being raised too fast, with consequent danger of burning the pulp.

"The System of Rosin Size, Alum and Fiber as Related to Problems in Paper Sizing," by Samuel J. Robinson, of the Institute of Paper Chemistry, Appleton, Wis.

"A Study of the Effect of Hemicelluloses on the Beating and Strength of Pulps," by Henry E. Obermanns, of the Institute of Paper Chemistry, Appleton, Wis.

Ladies' Bridge Parties

Two bridge parties were arranged by the Ladies' Committee, one on Thursday afternoon while the men were away on the all day mill visiting trip and one on Friday morning while the T. A. P. P. I. technical session was being held on the ship.

Special prizes were provided by contributions from Consolidated Lithograph & Manufacturing Co., *Pulp and Paper Magazine of Canada*, *The Paper Mill* and *Paper Trade Journal*.

Winners of prizes on Thursday were Mrs. Holden, Mrs. Bickley, Mrs. Walker, Mrs. Burland and Mrs. Holbrook.

On Friday the winners were Mrs. Harpell, Mrs. Hanson, Mrs. De Cew, Mrs. Burland and Mrs. McDonald.

A special prize was awarded to Miss Betty Lou Frampton for her excellent diving at the Manoir Richelieu pool.

. . . And so the international summer meeting of the Technical Association of the Pulp and Paper Industry and the Canadian Technical Section was brought to a close. It has set a standard for such meetings that it will be very hard to better, and the pleasures of the wonderful trip so perfectly arranged by the committee will live for many years in the memory of all those who attended.

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◆ Columbia Alkali Enters Liquid Chlorine Field

In line with the progressive policy characteristic of The Columbia Alkali Corporation, comes the interesting announcement that liquid chlorine and electrolytic caustic soda have been added to the products of this concern. Already a complete new plant, modern to the last detail, has been finished and shipments are now being made in single and multiple tank cars, and in 100 and 150 lb. cylinders.

Although the new chlorine plant is located on the company's extensive property holdings at Barberton, Ohio, it is well removed from other plant operations. Every benefit of scientific development, every manufacturing refinement have been employed in connection with this plant. The latest type of equipment was selected down to the most minute detail.

A standard type electrolytic cell is used in the new plant. Raw materials in abundance, together with favorable power situation, and efficient plant operation, coupled with excellent transportation facilities, insure users of Columbia Chlorine a most economical and dependable source of supply. The containers—bulk tank cars, multiple unit cars, and cylinders—are of the latest improved design and may be relied upon to render trouble-free service.

The importance of liquid chlorine is increasing rather than diminishing. It is indispensable to a wide variety of industries. Leading uses of liquid chlorine include water purification and sewerage disposal; bleaching of pulp and paper; the finishing processes of many textiles; and as a raw material in the production of many industrial chemicals. Anticipating a steadily mounting demand for Columbia Chlorine the officers of the company have made provision for expanding production facilities by units at this modern plant.

◆ H. L. BOGER, of The Dayton Rubber Manufacturing Co., Dayton, O., has been transferred to the company's Industrial Division in charge of Dayton Cog-Belt sales in the Philadelphia territory, headquarters at 928 City Centre Bldg., 121 N. Broad Street.

Twenty-Fifth Annual Conference of Hammermill Agents

IN 1912, thirteen paper merchants met at Erie, Pa. This year, also in Erie, 134 merchants and export representatives assembled on August 27 and 28 for the twenty-fifth annual conference with Hammermill agents.

In those twenty-five years the Hammermill conferences have built up a sound relationship between Hammermill and its agents and have been the means of a better understanding between merchant and mill. This was brought out in the opening address this year by Ernst R. Behrend, president of the Hammermill Paper Company, who presided at the meetings.

Following Mr. Behrend's opening address, Norman W. Wilson, first vice president and general manager of Hammermill, spoke of the selling policies back of the well-known Hammermill trade-mark. H. R. Baldwin, Hammermill's vice president in charge of sales, explained sales activities planned for the coming year. Mill policies and viewpoints were the subject of a talk by D. S. Leslie, vice president and assistant general manager.

The story of Hammermill's advertising was dramatically presented by A. Ellis Frampton, advertising manager and assistant sales manager. J. F. Wuenschel, district sales manager for the Pacific Coast, spoke of the papers made at the Grays Harbor Pulp and Paper Company and G. P. Bothwell demonstrated the new Hammermill line, Dura-Glo Cover.

Visiting speakers included J. H. Brewer, chairman of the Merchandising Committee of the National Paper Trade Association, and E. V. Johnson, first vice president of United States Envelope Company.

Meeting at the home of Mr. E. R. Behrend, Wednesday, August 26, the Agents' Advisory Committee conferred with mill officials in forming the program for the meetings. Advisory Committee members present were: Chairman W. N. Gillett, Chicago Paper Company, Chicago; C. A. Esty, Carter, Rice & Company Corporation, Boston; I. W. Carpenter, Jr., Carpenter Paper Company, Omaha; P. A. Stuhlreyer, Diem & Wing Paper Company, Cincinnati; H. T. Newell, Jackson Paper Company, Jackson; J. Nacht, Union Card & Paper Company, New York; R. S. Johnston, Old Dominion Paper Company, Norfolk; R. W. Roehm, Beecher, Peck & Lewis, Detroit; V. E. Hecht, Zellerbach Paper Company, San Francisco.

New members of the Advisory Committee, elected by the Agents, were: Max Greenebaum, Beekman Paper & Card Company, Inc., New York; W. N. Schaefer, R. P. Andrews Paper Company, Washington; and H. F. Petrequin, Petrequin Paper Company, Cleveland.

New members of the Advertising Committee are J. H. Brewer, Storrs & Bement Company, Boston, and F. P. Leslie, The John Leslie Paper Company, Minneapolis.

Both days' sessions were held in the mornings at the Kahkwa Club. Golf and other sports filled the afternoons.

◆ PFALTZ & BAUER, INC., New York, announce the appointment of J. H. W. Kersten as Sales Promotion Manager. For many years advertising and sales promotion manager for Carl Zeiss, Inc., and, more recently, European Representative of the McGraw-Hill Publishing Company, Mr. Kersten will relieve Mr. F. M. Bauer, President, of sales promotional and advertising detail, and also contact industrial and trade accounts now being served by this firm.

◆ New Machine for Making Oxygen

Mr. J. F. Lincoln, president and general manager of The Lincoln Electric Company, Cleveland, Ohio, has just returned from a business trip to Germany, which he made to investigate a new type of machine for manufacturing oxygen.

While in Germany, Mr. Lincoln completed negotiations with The Messer Company, Frankfort on Main, Germany, for representation in the United States. The Messer Company are the designers and patentees of a low priced automatic oxygen machine whereby users of oxygen for cutting and welding by the acetylene process can produce oxygen in their own plant at low cost and thus reduce the cost of doing this work to a point much lower than heretofore.

Due to the low first cost and very economical operating costs it is believed that this equipment will be of great interest to plants who use as low as 500 cu. ft. of oxygen per day.

Mr. Lincoln reports that The Lincoln Electric Company will handle all negotiations for use of any equipment sold or manufactured under the Messer patents in this country. It is expected that a demonstration plant will soon be installed in the plant of a large user of oxygen near Cleveland and will be available for observation by anyone interested.

◆ SIGNAL ELECTRIC MFG. CO., Menominee, Mich., will build a two-story addition to its plant that will cost around $20,000. The increased demand for this company's products has necessitated the expansion.

◆ McKibbin Heads New Westinghouse Dept.

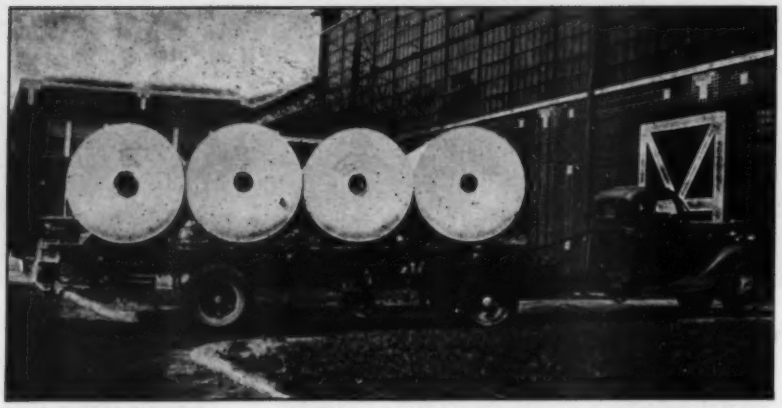
J. M. McKibbin has been appointed manager of a newly created Sales Promotion Department according to an announcement by N. G. Symonds, Vice President, in charge of sales, of the Westinghouse Electric and Manufacturing Company.

All apparatus sales promotion operations excepting those of the Company's merchandising department will be coordinated under the new department's management and the activities of district office sales promotion managers will be directed by Mr. McKibbin. There will be no change in the Advertising Department now under the management of R. R. Davis.

Mr. McKibbin has been associated with Westinghouse since 1920 and has been Sales Promotion Manager of the Cleveland, Detroit and Pittsburgh sales offices.

◆ WILLIAM HOGENSON has been named special representative on Toncan Iron enameling stock, according to an announcement by F. H. Ramage, Manager of Sales Promotion, Republic Steel Corp. His work will be in conjunction with that department under the new Product Development Division.

◆ C. O. BARTLETT & SNOW CO., Cleveland, Ohio, announces the appointment of P. K. Reed to its engineering and sales departments. Mr. Reed, who is well known throughout the industry, was for many years chief engineer and later Chicago manager for the R. H. Beaumont Company, and more recently President of the Atlas Conveyor Company.



◆ Tractor-Trailer for Paper Rolls

Fruehauf Trailer Company, Detroit, Mich., has announced the designing and building of a tractor-trailer for the Plastergon Wall Board Co. of Buffalo, N. Y., for the handling of paper rolls.

The trailer, a platform style, Model 718 Fruehauf, has its rear axle placed 5 ft. 9 in. ahead of the rear of the trailer to relieve the tractor-truck of excessive strain without in any way affecting perfect balance of the unit. It also has 17 in. x 4 in. power brakes and 36 in. x 8 in. 12-ply Goodrich dual tires.

The tractor-truck is a Ford with a 157 in. wheelbase.

This tractor-trailer combination, according to the manufacturer, hauls ten-ton loads from 10 to 150 miles at marked savings in time, overhead, and operating costs over solid-tired equipment formerly used.

◆ Air-Cooled Compressors

A line of compact, self-contained three and six-cylinder, vertical angle, two-stage compressors with capacities ranging from 142 to 445 cubic feet per minute has been developed by Worthington Pump and Machinery Corporation, Harrison, N. J.

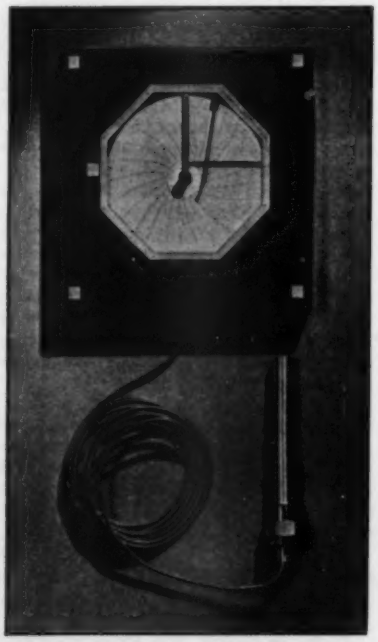
Automotive type pistons with two compression rings, two oil rings, and full-floating wrist pins are used on all models. A finned, radiator type intercooler, with a fan which draws air

through the cooler and over the cylinder head, removes the heat of compression. The suction and discharge valves are in separate compartments, and the crank case is fitted with large cover plates. A large oil reservoir in the crank case, force feed lubrication, an oil cooler and an oil filter assure lubrication of all moving parts.

The units may be had with Worthington Multi-V-Drive direct connected to the motor through a flexible couple, or with motor mounted directly on end of crankshaft.

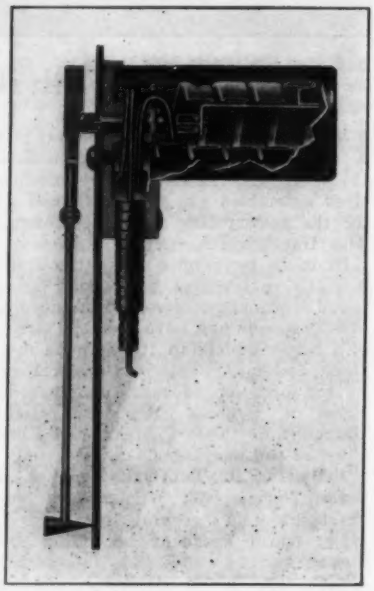
◆ New Thermometer Design

The Republic Flow Meters Company, 2240 Diversey Pkway., Chicago, has developed a new design of thermometer for industrial operations. This thermometer utilizes a thermal system made



up of a cartridge-sealed helical spring, capillary tube, and bulb which are welded together into a single element and filled with pure nitrogen gas under pressure. The thermal element can be removed from the reading instrument for recalibration, repair, or change of temperature range without disturbing any mechanism; or it may be interchanged with any other Republic thermal element. Operating ranges for the instrument are between —20 deg. Fahr. and +1000 deg. Fahr.

The reading instrument, which may be placed at any point up to 200 feet from the point of temperature measurement, is mounted on a 16 in. x 16 in. black



steel panel. Bezels are aluminum. A dustproof door protects the chart. The recorder is complete with automatic pen lifter and non-removable chart knob and with either an electrical or mechanical clock as specified.

Ten-inch charts are standard. They have evenly graduated scales and are available for any range. One, two or three records may be obtained on a single, round chart and the thermometer may be combined with other Republic instruments to provide records of related factors, such as flow, CO_2, draft, pressure, etc. on a single chart.

◆ Lift-Jack and Platform Combination Unit

A hand trucking device consisting essentially of a detachable lift-jack and a platform unit, which together are designated as Clark lift-jack and platform equipment, has been announced by the All Steel Welded Truck Corporation, Rockford, Ill.

The jack-unit, weighing not more than 42 lb., consists of a reinforced steel housing enclosing a fulcrum lift mechanism designed to produce a lifting power of 6000 lb. with only 76-lb. handle pressure. It is regularly equipped with two wide face semi-steel wheels, 8 in. diameter, equipped with Hyatt type roller bearings but rubber tired wheels may be had if desired. The handle is of tubular steel and, when platform is engaged, is entirely free, enabling operator to move load with handle at any

angle that provides greatest ease and leverage.

A guide plate is provided on jack socket to facilitate access to engaging pin on platform and, when in position, contact is made by bringing handle forward to horizontal position. This movement of the handle locks the engaging pin in the socket and at the same time raises platform approximately three-

quarters of an inch from the floor. To disengage it is only necessary to trip a foot lever.

Four types of platforms are considered as standard—combination metal bound with wood deck and steel bracing; combination de luxe with wood deck, double side rails and armored ends; wood with steel braces only; and all steel.

At the front of the platform, welded in position, are the lift-jack engaging pin and two steel legs; while at the rear are two 9 in. diameter semi-steel wheels. These wheels are equipped with either plain or Hyatt type roller bearings. Rubber tired wheels may be had if desired.

Platform specifications for each of the standard types include three sizes: namely, 26 in. x 60 in.; 30 in. x 60 in.; and 36 in. x 60 in.

◆ Portable Electric Marking Tool

A portable electric tool for marking on practically any material has been announced by the Ideal Commutator Dresser Company, 1028 Park Avenue, Sycamore, Ill. This tool, designated as the Ideal Electric Marker, writes like a pencil and leaves a permanent record

cut right into the surface being marked. It is said to be invaluable for marking nameplates, identifying warehouse or stock room parts, and for the marking of tools and instruments. In addition to metals, it may be used for writing on glass, hard rubber, Bakelite, fiber and similar materials.

The tool is simply plugged into any 110 volt, 60 cycle, a-c. circuit to make it ready for service. A unit to operate on 220 volt, 60 cycle, a-c. can also be furnished if desired.

◆ Power Control for Shovels, Draglines, and Cranes

Link-Belt Company, 307 N. Michigan Ave., Chicago, has announced a power control, designated as the Speed-O-Matic Control, for power-operated shovels, draglines, and cranes.

The control is referred to as having literally no wearing parts between the clutches or brakes and the conveniently arranged control stand, behind which

the operator is comfortably seated, at front of cab. Likewise, as to maintenance costs, it is reported that actual operation has shown clutch and brake wear so nearly negligible that it is believed that deterioration of material, rather than wear, will determine the life of clutch and brake linings.

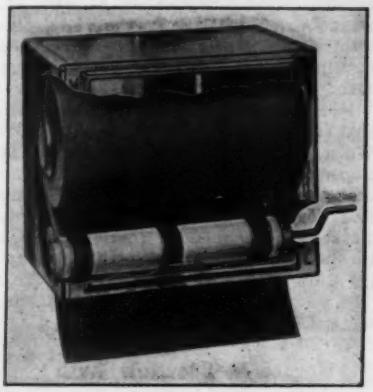
The advantages cited by the manufacturer for the control which is furnished as standard equipment on Link-Belt shovel-dragline-crane models K-40, K-45, and K-480, include elimination of operator fatigue, much speedier operation, and greater output.

◆ Towel Cabinet for Non-Perforated Paper Roll

The Bay West Paper Company, Green Bay, Wis., has developed a paper towel cabinet, known as Mosinee Turn-Towl, that dispenses paper from a non-perforated roll. The cabinet is of all-metal construction with a mirror front. It opens outward, and when closed is locked against tampering.

A roll of non-perforated sulphate kraft paper is held in the cabinet. One side of the roll has a metal core end which makes filling easy and assures the roll being placed in the cabinet properly. The other side of the roll is held by a bracket which slides to permit easy insertion of a new towel roll.

A stop waste cut-off forces the user to take only one towel at a time. The user must first push a lever on one side of the cabinet, then turn a hand crank on the other side until it stops, and last, tear off the towel against a cutter edge. In operation, the hand crank turns two revolutions to deliver 10¾ inches of paper. Tearing off the paper trips an



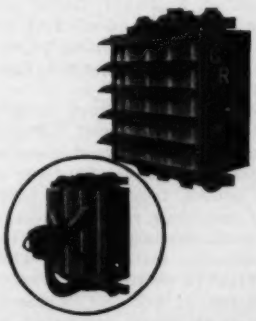
automatic release which again sets the machine for operation. A panel on the face of the cabinet indicates continuously the amount of towel material available.

◆ Self-Emulsifying Solvent Cleaner

A. F. Curran Co., Malden, Mass., has announced a self-emulsifying solvent cleaner for grease and oil accretions. The manufacturer states that this cleaner, known as Gunk, causes mineral oils and greases treated with it to form stable emulsions with cold water. The cleaner is prepared for use by dissolving it in kerosene or other low cost solvent. It is said to be harmless to paint and to be rated as a safety solvent with respect to fire hazard.

◆ Addition to Unit Heater Line

The Unit Heater & Cooler Company, Wausau, Wis., has added four new sizes to its line of "Grid" unit heaters. Designated as Nos. 515, 520, 525, and 530, the new models at 2 lb. steam pressure and 60 deg. Fahr., in the order given, have



rated capacities in B. t. u.'s of 56,750 with 1290 c. f. m. air volume at fan, 97,500 with 2500 c. f. m. air volume at fan, 158,500 with 4200 c. f. m. air volume at fan, and 248,000 with 5300 c. f. m. air volume at fan.

◆ Northwestern Div. of Supts. Meets at Duluth

The Northwestern Division of the American Pulp & Paper Mill Superintendents Association will be held at Duluth, Minn., September 11 and 12. Headquarters will be at the Hotel Duluth, where registration will take place at nine o'clock on the morning of the 11th.

Meetings will be held as follows: General session, under the leadership of Dr. Walter F. Hoffman, of the Northwest Paper Co.; Sulphite, led by S. E. Tomczak, of Flambeau Paper Co.; Sulphate and Soda, led by C. K. Textor, of the Northwest Paper Co. There will be a luncheon meeting at the Northland Country Club followed by a golf tournament. The joint banquet will be given at the Hotel Duluth, Friday evening.

◆ Horace N. Lee Now With Arthur D. Little, Inc.

Mr. Horace N. Lee, with a background of twenty years of diversified microscopic study experience in the study of wood and other paper making fibres, has joined the staff of Arthur D. Little, Inc., Cambridge, where he will be available to paper manufacturers and users for the solution of paper making problems. His graduate training in microscopy at Harvard University, followed by his work in the department of Timber Physics at the Forest Products Laboratories, Canada, on wood paper making fibres, including the preparation of photomicrographs and the causes of decay in paper making woods, were excellent preparation for the microscopic and microchemical investigations that he subsequently made at the Hammermill Paper Company in Erie, Pennsylvania. Mr. Lee has published numerous articles, including studies of the causes of paper mill slime and methods for their removal, studies of the causes of paper deterioration and wood decay, and investigations of method for positive paper fibre identification.

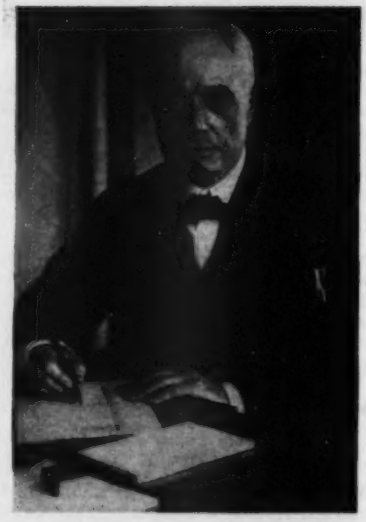
For the past three years he has been developing, as a member of the research staff of Harvard University, under the direction of Professor Oakes Ames, a number of precise and efficient methods for sectioning and staining paper fibres in the study of coated, sized, filled, and laminated papers.

He is prepared to work on problems involving fibre and wood identification, storage and decay of wood, deterioration of paper, especially when due to biological causes, treatment of paper mill slimes, and their removal, coating and sizing problems in paper involving mineral, pigment, starch, rosin, glue, etc., penetration of writing and printers' ink, penetration of vehicles, pigments, and liquids of all kinds into paper, application of adhesive and protective film to paper and wood, and application of lamination and impregnation to plywood, roofing papers, etc. In addition, he is prepared to pass upon the worth of new paper making products and processes, prepare patents in the paper field, and recommend treatment of wood to increase resistance to fire and decay. His work also includes evaluation of papers for all kinds of specific uses, identification of dirt in paper, comparing papers with the products of other manufacturers, the making of studies in conjunction with paper improvements, standard specifications, uniformity and interpretations of other tests, developments of new, unique, and efficient methods for microscopic and microchemical study of paper and paper fibres, preparation of slides, photomicrographs, and descriptive diagrams, the rendering of technical assistance in the preparation of sales and advertising material, including photographs for paper publicity, the identification and restoration of valuable documents, detection of forgeries and substitutions, estimates of the age of paper and conditions under which it was made, and developing of papers with special properties for special uses to definite specifications such as mimeo, duplicator, water-proof, oil-proof papers, etc.

◆ William F. Whiting

William F. Whiting, president of the Whiting Paper Co., Holyoke, Mass., passed away August 31 at his home in Holyoke at the age of 72 years.

Mr. Whiting was one of the leading paper mill executives in this country. He was also distinguished for his high position in government circles. In the Coolidge administration, Mr. Whiting



succeeded Herbert Hoover as Secretary of Commerce. He was a close personal friend and confidant of the late Calvin C. Coolidge, both having been graduates of Amherst College.

The name of "Whiting" has been prominent in the history of both the paper industry and government affairs. Mr. Whiting's father, the late William Whiting, was the founder of the Whiting Paper Company. In 1878 he was elected first president of the American Paper and Pulp Association and served in that capacity for two years. He was also prominent in government circles, having been a member of Congress.

◆ D. J. Murray Introduces 50-Inch Chipper

To fill a demand for a chipper in size between the laboratory chipper and the commercial mill size, the D. J. Murray Mfg. Co., Wausau, Wisconsin, has designed and manufactured a 50-inch chipper. This new chipper is designed and made along the lines of the regular commercial mill size Murray Chipper, with all of the improved features of the larger machine.

It is designed especially to handle sawmill refuse, slabs, edgings, and small round pulpwood. It is adaptable for use in experimental semi-commercial and certain commercial installations.

◆ Edward Holt Morris

Edward Holt Morris, president of the Lang Co., Gloucester City, N. J., passed away recently at his home in Philadelphia, at the age of 76 years.

Mr. Lang had been connected with the Lang Company, well-known felt paper manufacturing concern for many years. In 1901 he was made president of the John Lang Paper Company, which later became the Lang Company. He continued as the chief executive of the Lang Company until the time of his passing.

He is survived by a son and a daughter.

◆ I. P. Co. Mill Makes Record Run

The Corinth Advertiser, Corinth, N. Y., published an interesting account in its August 10 edition of a record run made by the Hudson River plant of the International Paper Company, Palmer, N. Y.

The item states that the eight machines of this plant turned out 300 tons of specialty paper during a 24-hour run. The management was highly elated and mill employes were recipients of cigars on the occasion of this record attainment, which was the first since all ten machines were in operation and regular newsprint was being manufactured.

◆ Manhattan Granted Patent for Radio-Active Treatment on Hose

Announcement that patents have been granted covering their Radio-Active Treatment of Fire Hose has been made by the Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J. The Patent certificate is No. 2,045,738.

This treatment is applied to the cotton fabric used in the making of Fire Hose for industrial and municipal fire protection. It involves processing with a rare earth metal salts having radioactive properties which effectively and permanently resist mildew and make the hose moisture repellant, rot and freeze-proof—thus indefinitely lengthening its useful life. Manhattan's Fire Hose with this treatment has a distinctive green color.

No other manufacturer is using this method and under these patents Manhattan will retain exclusive rights to it.

◆ New Catalogues and Publications

Paul O. Abbe Inc., Little Falls, N. J.—Catalogue Q, just issued, describes in text and pictorial presentation this company's line of cutters, granulators and pulverizers. Copies on request.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.—A new bulletin just released, No. 1179, covers this company's condensing automatic extraction turbine frames for the capacity range of 500 kw. through 5,000 kw. There are installation photographs as well as sectional views. Another section is devoted to Allis-Chalmers turbo-alternator construction. Another leaflet, 2226, features the company's Nordyke service elevator of the continuous moving step type. It gives a well illustrated description of how interfloor travel for employees and products can be expedited in any building consisting of two or more floors.

American Manganese Steel Co., Chicago Heights, Ill.—A leaflet of 6 pages (8x10) tells the story of Manganese steel. The story takes up such subjects as history, chemical content, physical properties, method of manufacture, heat-treatment, machining, uses, welding, etc. The article is illustrated with drawings and photomicrographs.

Bausch & Lomb Optical Co., Rochester, N. Y.—A leaflet just received gives specifications and improvements of the Improved KW Wide Field Binocular Microscope, which the manufacturer claims has a wider range than the original KW series but retains all of its other features. Catalogue E-21, just released, is entitled Photo-Micrographic Equipment. This catalogue contains complete information on the subject with data and illustrations. The equipment is separated under chapter headings.

Bristol Company, Waterbury, Conn.—Bristol's Process Cycle Controller is described in bulletin No. 447 which may be had upon request. This controller, Model 6088V, is a new addition to the Bristol line of process cycle controllers. Bulletin 457 is descriptive to this company's recently announced Pyrotol, the new Factory-Mutual-Approved instrument which is offered as a safety device for use on gas-fired industrial ovens—safety against pilot light failure.

Cochrane Corp., Philadelphia, Pa.—A late publication, No. 2096, features Cochrane electric flow meters for remote measurement of steam, water, gas and other fluids. Details are given on the highly accurate galvanometer null principle of measurement and there is also a description of the styles available for different applications of fluid flow measurement.

Foxboro Company, Foxboro, Mass.—The principles, operating details and methods of application of the Stabilog Potentiometer Control Pyrometer are described in comprehensive style in Bulletin 194-1, recently published. Related equipment for automatic temperature control is also covered. The bulletin contains specifications and ranges of thermocouples, resistance bulbs and other accessories, thus providing a complete reference guide for selection of modern equipment for continuous temperature control. Copies on request.

General Electric Co., Schenectady, N. Y.—In a broadside entitled "How Business Concerns are Saving from $400 to $10,800 a Year," a few facts about power-factor are related. The answer to the title is that this is done by improving power-factor with G-E Pyranol Capacitors. Twelve instances are cited giving full details of the amount saved together with illustrations.

H. M. Harper Co., 2620 Fletcher St., Chicago—This company's catalogue of bolts, nuts, screws and washers for 1936 is ready for distribution. It is claimed that 2,200 stocked items are listed in this catalogue, and hundreds more for prompt shipment. These items are made in brass, bronze, Everdur, Monel metal and stainless steel. The catalogue itself is a very attractive piece of work. It is printed in four colors on enamel paper with a heavy cover on which a design is embossed in gold. Copies on request.

Johns-Manville, 22 E. 40th St., New York City—The 1936 edition of the Johns-Manville industrial products catalogue is now available. This 60-page book is profusely illustrated and contains a wealth of information and recommendations on high and low temperature insulating materials for every industrial need. Sections are devoted to the major industries, and, of course, there are recommendations for pulp and paper mills. Copies on request.

Kropp Forge Co., 5301 W. Roosevelt Road, Chicago—This company has recently issued a 24-page list of stock flanges. This list includes dimensions, weights and prices on standard flanges in all sizes from ¾" to 24". There is also engineering data on standard flange facings, drilling templates, pressure-temperature ratings, threading standards, bursting pressures and dimensions of standard, extra heavy and double extra heavy pipe. Copies will be sent to all designers, engineers and flange users who request it. Ask for No. 125.

Lincoln Electric Co., Cleveland, O.—A bulletin entitled "Lower Piping Costs with Shielded Arc Welding," sets forth reasons why shielded arc welding is economical for creating new piping, and also how it gives better results. The bulletin is profusely illustrated with installation views. Another piece of literature just released by this company is a folder giving data, descriptive matter and illustrations featuring the Linc-Weld Type "E" Motors. Copies on request.

Link-Belt Co., Chicago—A new 24-page illustrated catalogue, No. 1562, complete with clearance diagrams and dimension tables, has been issued by this company on its two distinct types of vibrating screens ("UP" and "PD") for accurately screening such materials as coal, coke, sand, gravel, lime, ore, chemicals, etc. Another publication, No. 1569, is devoted to the company's recently announced Speed-O-Matic Shovel-Dragline-Crane.

McCaskey Register Co., Alliance, Ohio—A folder tells how inventory methods may be simplified by the use of the McCaskey One-writing Records and McCaskey Visible Filing. Illustrations of actual forms are shown. This folder will be of timely interest to any organization interested in making a comparison of stock record methods.

Morris Machine Works, Baldwinsville, N. Y.—Non-clogging centrifugal pumps for handling pulpy materials such as sewage and paper pulp are described in a new bulletin just published. The construction of these pumps is explained in detail; exterior and interior views are shown, and there is a complete table of dimensions for both horizontal and vertical types. Ask for Bulletin 161.

Oliver United Filters, Inc., 351 California St., San Francisco, Calif.—In a recent folder, the Sweetland Pressure Filter is described. The construction and operating principle are outlined and there are a number of interesting illustrations.

Patterson Foundry & Machine Co., Patterson, N. J.—The new Patterson Mill Drive is the subject of a new folder. There is a concise description of the drive and a full-page illustration.

Pyrene Mfg. Co., Newark, N. J.—In folder No. 161, entitled "The Newest Development in Fighting Fires," this manufacturer of fire-fighting apparatus describes an entirely new method, mechanical rather than chemical, of making foam for fighting inflammable liquid fires and suitable for use with long or short lines of ¼" to 2½" hose. This new foam-making solution is known as Phomaide.

Schutte & Koerting Co., Philadelphia, Pa.—A new automatic flow controller is described in bulletin 18-T. This controller has been developed for use in connection with the company's rotameters. Considerable information is included in the bulletin and there are installation and wiring diagrams.

Seamless Steel Equipment Corp., 39 Broadway, New York—Catalogue K just received, shows seamless steel products for high pressure and high temperature requirements as manufactured by the forged, rolled and drawn processes. This catalogue contains interesting information regarding the various manufacturing processes and illustrates numerous high pressure seamless steel vessels of special design. Tables of the standard sizes of seamless steel containers and seamless steel square and rectangular tubes are listed.

The Swartwout Co., 18511 Euclid Ave., Cleveland, Ohio—A new bulletin, V-100-B is entitled "Common Sense Ventilation for Industrial and Commercial Buildings." This is a non-technical bulletin on a more or less technical subject of universal interest. The Swartwout method of ventilation is explained and further amplified by two full-page diagrammatic illustrations of the Swartwout Rotary Bronze Ball Bearing Ventilator and the Swartwout-Dexter Heat Valve.

Westinghouse Lamp Co., Bloomfield, N. J.—The need for an authentic source of lighting facts which can be carried conveniently, has been met with the new edition of the Illumination Handbook, just put out by this company. The earlier editions contained but two sections—the new one contains seven sections. The table of contents covers the design of: (1) interior lighting installations; (2) built-in lighting; (3) display lighting; (4) sign lighting; (5) floodlighting installations; (6) underwater lighting installations; and (7) street and highway lighting practice. The handbook is 4x6½" and fits into a coat pocket. It is a complete, concise encyclopaedia of lighting always at one's fingertips. A charge of 10 cents each is made for copies, which may be obtained from the Commercial Engineering Department of the company.

Worthington Pump & Machinery Co., Harrison, N. J.—New folders just released are M-975-B1A on Worthington-Gamon Water Meters for cold water services. Also W-711-83, covering Worthington horizontal simplex air and steam heating vacuum pumps. A new illustrated bulletin, W-205-B2, is devoted to this company's steam-jet ejectors in single or multiple units. These units have a wide application to many industries such as chemical, wood-treating and general processing, together with condensers for power generating stations. The bulletin contains a chart showing the economical ranges of vacuum and capacity for standard single and multi-stage units, together with a saturated vapor pressure curve. Another bulletin, W-350-B1 is devoted to a small, low cost, acid-resistant centrifugal pump. Cross-sectional views are shown and rating charts are included.

BOOKS

Research Paper RP 889—The title of this paper is the "Calculation of the Concentration and Dissociation constant of each acid group in a mixture from the pH Titration curve of the Mixture." The authors are J. O. Burton and S. F. Acree, and the work is a part of the Journal of Research of the National Bureau of Standards, Volume 16, June 1936. Copies are available from the Superintendent of Documents, Washington, D. C., for five cents each.

The Townsend Crusade—The Committee on Old Age Security of the Twentieth Century Fund, Inc., has recently completed a study of the Townsend Plan and has published its findings under this title. The information contained in this report will undoubtedly be of interest to business men who are anxious to be informed on all phases of pension systems. The book is priced at 25 cents per copy, and may be obtained from the Twentieth Century Fund, Inc., 330 West 42nd Street, New York City.

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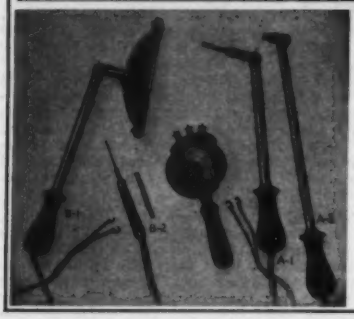

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◆ Gainful Employment Object of Forestry

The main objective of forestry in the United States is to provide the most efficient use of forest land. This use should be directed toward gainful employment in order to provide a permanently prosperous condition of the land. The object of this is to give work to the largest number of persons, to furnish raw material for industries and commerce at reasonable prices, to provide for wild life, recreation and protection of the land itself and flood control. In other words, the forests should be managed for the best possible public use, according to a statement published by the New York State College of Forestry at Syracuse University.

One of the great problems today, says the statement, is how the large private holdings of forests can be so handled. The owners themselves are not doing this, generally speaking, and there is little prospect that any material change will take place in the management of private forests in the near future.

Because of this situation it has become a government policy to acquire larger and larger areas of forest lands and to include not only the denuded and worthless areas but productive areas upon which forest management may be at once profitably established. Private ownership at present is what might be called in a state of instability, in so far as the land is concerned, because there is a tendency for the surplus or timber depleted holdings to gravitate into public ownership.

Private ownership has been over-extended in many cases and now is unable to carry permanently the lands which it optimistically acquired. But a balance should be obtained between private and public ownership of the productive forests of the country, says the college. It is only by a large scale extension of public ownership that increase in the creation of waste lands can be slowed down and reversion of this sort of property to the state and nation be decreased.

Such waste areas no longer provide employment, nor do they produce a commercially valuable product. They become a liability. On the other hand, had these lands been properly handled originally they would still be producing trees and furnishing employment.

◆ New Brunswick Makes Test Shipments of Pulpwood

Possibility to open up an export market in European countries for New Brunswick pulpwood is being tested by the forwarding of approximately 6,000 cords of New Brunswick pulpwood to the Netherlands and Germany. One cargo of 3,000 cords has already been loaded at Newcastle in the Miramichi area, and the remaining 3,000 cords have been collected and are ready for shipment. This information was recently published in *Side Runs of the Paper Trade*, issued by the Department of Commerce.

The present effort to establish a pulpwood market in Europe for New Brunswick products is entirely new and is in the form of an experiment to probe the possibilities of establishing a permanent export market in European countries. If the venture should prove a success it will mean much to the Province of New Brunswick in providing greater employment opportunities to overcome the unemployment situation in New Brunswick. For many years the United States provided the only export market for lumber products of all kinds. Since the loss of the United States lumber market by reason of high tariffs imposed, the producers and shippers of lumber products in New Brunswick have sought other markets for their lumber, especially in the United Kingdom, and now additional markets are being sought on the Continent. (Vice Consul Frederick C. Johnson, Fredericton.)

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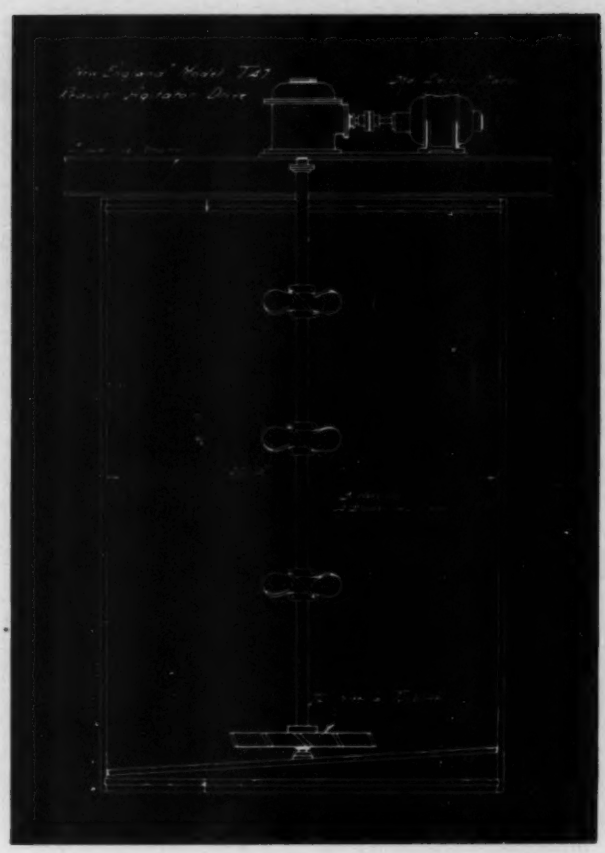

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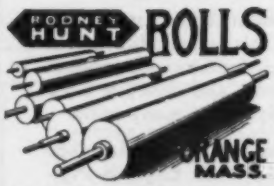

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The Paper Industry Safety Contest

July 1, 1936 to June 30, 1937

July Scores

59 Perfect Scores

PERFECT SCORES

Division I—Paper and Pulp Mills

	PARTICIPANT	MILL	LOCATION
GROUP A	Hollingsworth & Whitney Co.	Algonquin & Taconnet	Waterville, Me.
	International Paper Co.	Hudson River	Palmer, N. Y.
	Consolidated Paper Corp., Ltd.	Belgo Div.	Shawinigan Falls, Que.
	Container Corp. of America	Philadelphia	Pennsylvania
	Eddy Paper Corp.	Three Rivers	Michigan
	Fraser Companies, Ltd.	Edmundston	New Brunswick
GROUP B	Mead Corporation	Kingsport	Tennessee
	Nekoosa Edwards Paper Co.	Port Edwards	Wisconsin
	Consolidated Paper Corp., Ltd.	Port Alfred Div.	Port Alfred, Que.
	Kimberly-Clark Corp.	Niagara	Wisconsin
	Hoberg Paper Mills, Inc.	Hoberg Div.	Green Bay, Wis.
	Nekoosa Edwards Paper Co.	Nekoosa	Port Edwards, Wis.
	A. P. W. Paper Co., Inc.	Albany	New York
	Continental Paper & Bag Corp.	New Haven	Pennsylvania
	Cornell Wood Products Co.	Cornell	Wisconsin
	St. Croix Paper Co.	Woodland	Maine
GROUP C	P. H. Glatfelter Co.	Spring Grove	Pennsylvania
	Escanaba Paper Co.	Escanaba	Michigan
	Strathmore Paper Co.	West Springfield	Massachusetts
	Consolidated Water Power & Paper Co.	Biron	Wisconsin Rapids, Wis.
	Container Corp. of America	Coated Board	Chicago, Ill.
	Finch, Pruyn & Co., Inc.	Glens Falls	New York
	Crystal Tissue Co.	Middletown	Ohio
	Hoberg Paper Mills, Inc.	Fibre Div.	Green Bay, Wis.
	Strathmore Paper Co.	Woronoco	Massachusetts
	Container Corp. of America	Circleville	Ohio
	Kimberly-Clark Corp.	Lakeview	Neenah, Wis.
	Southern Extract Co.	Knoxville	Tennessee
	Bedford Pulp & Paper Co., Inc.	Big Island	Virginia
GROUP D	Port Huron Sulphite & Paper Co.	Pulp	Port Huron, Mich.
	Upson Company	Lockport	New York
	Bird & Son, Inc.	Phillipsdale	Rhode Island
	Wrenn Paper Co.	Middletown	Ohio
	Mead Paperboard Corp.	Nashville	Tennessee
	U. S. Envelope Co.	Morgan Paper Co. Div.	Lititz, Pa.
	American Asphalt Roof Corp.	E. St. Louis	Illinois
	International Paper Co.	Livermore Falls	Maine
	International Paper Co.	Ticonderoga	New York
	Flinkote Co.	Little Ferry	New Jersey
	Hollingsworth & Whitney Co.	Arcostook & Cobbossee	Gardiner, Maine
	Consolidated Water Power & Paper Co.	Stevens Point	Wisconsin Rapids, Wis.
	U. S. Gypsum Co.	North Kansas City	Missouri
	Rogers Fibre Co., Inc.	Bar Mills	Maine
	Spaulding Fibre Co., Inc.	Milton	New Hampshire
	American Asphalt Roof Corp.	Kansas City	Missouri
	International Paper Co.	Riley	Maine
	Hollingsworth & Whitney Co.	Abenaquis	Madison, Me.
	U. S. Gypsum Co.	Lancaster	Ohio
	Spaulding Fibre Co., Inc.	Hayes	No. Rochester, N. H.

Division II

Dixie Vortex Co.	Easton	Pennsylvania
Bird & Son, Inc.	Norwood	Massachusetts
Container Corp of America	Chicago	Illinois
New Orleans Corrugated Box Co.	Bogalusa	Louisiana
Container Corp. of America	Natick	Massachusetts
Bird & Son, Inc.	Roofing	Chicago, Ill.
Container Corp. of America	Anderson	Indiana
Kimberly-Clark Corp.	Atlas	Appleton, Wis.
Texas Corrugated Box Co., Inc.	Dallas	Texas
Bemis Bros Bag Co.	East Pepperell	Massachusetts

IMPERFECT SCORES

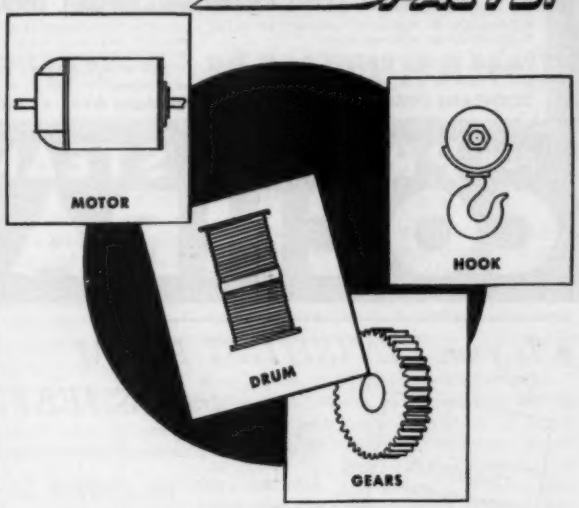
	Key Number	Rank	Disabling Injuries	Frequency Rate
GROUP A	P- 28	7	1	2.620
	P- 18	8	1	4.802
	P- 2	9	1	6.319
	P- 13	10	1	6.459
	P- 12	11	1	7.320
	P- 27	12	2	7.715
	P- 9	13	2	8.185
	P- 67	14	2	8.769
	P-107	15	1	9.013
	P- 58	16	1	9.662
	P- 84	17	2	11.668
	P- 30	18	2	13.377
	P- 64	19	2	13.907
	P- 69	20	2	14.549
	P-121	21	2	15.671
	P- 95	22	2	17.563
	P- 1	23	6	20.664
	P- 19	24	3	23.213
	P- 23	25	3	27.383
	P- 83	26	6	27.503
	P- 73	27	6	30.181
	P- 74	28	5	31.736
	P- 40	29	4	39.890
	P- 71	30	5	42.117
	P-102	31	7	42.239
	P- 87	32	7	44.340
	P- 32	33	8	64.544
	P- 45	34	10	95.236
GROUP B	P- 22	11	1	10.661
	P- 4	12	1	13.380
	P-100	13	1	13.392
	P- 77	14	1	13.708
	P- 76	15	2	29.197
	P- 70	16	3	33.403
	P- 54	17	3	38.564
	P-120	18	4	44.729
	P- 16	19	4	48.625
	P- 46	20	5	59.020
	P- 82	21	6	61.485
	P-122	22	5	68.970
GROUP C	P-104	14	1	18.030
	P- 29	15	1	18.211
	P- 75	16	1	18.330
	P- 47	17	1	21.701
	P- 39	18	1	25.641
	P- 17	19	1	26.078
	P-103	20	1	26.774
	P- 91	21	1	29.886
	P- 72	22	2	33.442
	P- 5	23	2	53.295
	P- 43	24	3	83.020
	P- 50	25	3	86.393
	P- 6	26	3	95.633
	P- 33	27	5	109.062
	P-113	28	7	145.289
GROUP D	P- 81	21	1	44.833

Reports delayed: P-34, 35, 36, 37, 38, 63, 92, 96, 111.

Division II

R- 5	11	3	43.603
R- 18	12	2	60.489
R- 14	13	3	197.375

DISCOVER THE FACTS!



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The four principal parts of a hoist are the motor, drum, hook and gearing. Look them over carefully, arrange and re-arrange them in your mind; see whether you can group them into simpler, more logical design than the LO-HED hoist.

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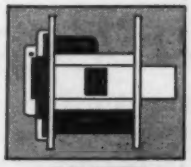
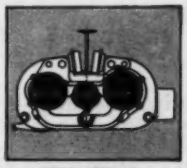


TOP VIEW



END VIEW

In the top view you see how compactly the parts are put together with, *straight line spur* gearing connecting motor and drum. The end view shows you the simple, logical combination of motor, drum and hook balanced around the I-beam. This is LO-HED'S low-headroom design and it's *patented.*

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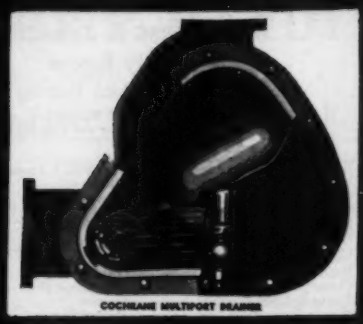
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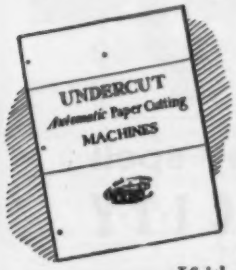

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Pulp Bleaching—a symposium of ten articles; each prepared by an authority. Makes a practical reference and operating guide for chemist and mill operator alike. Nothing else like it in the literature of the industry.

Papermaking Research Around the World, by Dr. Louis E. Wise. Resume of several hundred contributions to the foreign press. Pithy and interestingly written. Covers research activities in Russia, Sweden, Japan, Great Britain, France, Italy and Germany.

Identification and Microscopy of Woods and Wood Fibers Used in the Manufacture of Pulp, by Ellwood S. Harrar and J. Elton Lodewick. A condensed manual on wood identification that not only discusses various softwoods and hardwoods used in the making of woodpulp but also includes several keys to their identification.

Lessons in Paper Making (Part 1 and Part 2), by Harry Williamson. Part 1 discusses such subjects as running a winder, dryer felts, wrinkles and rips, presses, wet felts and their handling, suspension of fiber-slice velocity, head boxes and control, aprons and shake control, variables and the wire. Part 2 takes up the operation of the wire, sewing the wire, building the reel, structural formation of paper, the superstructure of paper, beater room preparation, vacuum-atmospheric pressure, distribution of atmospheric pressure-suction boxes, theory of color and safety practice in machine room.

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POWER

GENERATION + UTILIZATION + MAINTENANCE

This section turns the searchlight on power and its allied problems, showing big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

By W. S. JOULE

◆ Maintenance of Baffles

Repair work on baffles must be made when the baffles break away from the tubes, since the holes short circuit the flow of gases through the boiler and result in a lowering of efficiency. In the case of tile and baffles of the monolithic type, it is especially advisable to inspect the baffles after the boiler tubes have been cleaned with a flue cleaner. Quite frequently the vibration of the cleaner causes a portion of the baffle to fall out and, unless it is checked up, it may escape attention.

Sometimes the only way possible to reduce baffle maintenance to a reasonable point is to entirely rebuild the baffle. This involves a knowledge of the special types of construction which are used in late practice.

In developing baffles to meet these requirements, several types of construction have been used, such as, first, flame plates, which are usually covered with high temperature cement and interlocking tile; second, a combination of tile and plastic refractory and, third, a monolithic type made entirely of refractory material.

◆ A FIREPROOF covering for the blowoff pipes of boilers in combustion chambers and similar places is made as follows: Mix with water to a paste of the consistency of ordinary cement, 2 parts asbestos pulp and 1 part Portland cement. After this paste is applied, it should be held in place by wiring until it has thoroughly set.

◆ Care of Belt Conveyors

One of the earliest equipments for the handling of material, the belt conveyor, has been refined until now it enjoys a high state of perfection and usefulness, although a considerable amount of care must be given to keep it in good working condition. The belt conveyor, in power house service, ordinarily consists of an endless rubber belt running over troughing, carrying idlers, flat return idlers and foot and drive terminals.

Usually, the equipment includes either a hand-propelled or an automatic reversing self-propelled tripper. The carrying idlers are a series of pulleys mounted upon hollow shafts the extreme ends of which are fitted with grease cups or fittings for a high-pressure lubricating system. The hollow tubes should be completely filled with grease, after which an occasional application of grease by means of the cups or high-pressure gun will keep the pulleys of the idlers well lubricated. The return idlers consist of a series of pulleys mounted upon solid shafts, the end turning in swivel bearings. The swivel bearings are fitted with grease cups or high-pressure lubricators. By either method, grease can be applied to lubricate the bearings thoroughly. The same general rules for care and inspection as apply to the head and foot terminals.

Proper alignment of carriers is always important, in order that the belt may run perfectly true. As a guide to maintaining this proper alignment in long belts, guide idlers are used. Care should be taken to see that there are no broken or worn pulleys on either the carrying or return idlers, as they would badly mutilate the belts. Material should not be permitted to accumulate under the pulleys of the carriers so as to prevent free turning and cause the belt to slide over the surface of the pulleys. If this condition is allowed to exist, it will cause excessive wear on the belt.

Guide rollers or supporting structure located too close to the belt will cause the edges of the belt to become frayed or cut. Belts should be carefully laced to prevent pulling and destroying the plies of the belt. A good grade of belt lacing should always be used. Chutes or skirt boards sagging upon the belt are detrimental as they usually cut through and tear holes, ruining the belt for satisfactory service. If the belt shows excessive wear on the carrying side near the center, it may be due to improper loading. The material should be delivered to the belt with the least amount of impact possible and at the same speed as the belt, to eliminate the slipping of material on the belt as it is picked up.

Some precaution should be taken to prevent material from spilling onto the return side and riding into the terminals between the belt and pulley. Action of weather is a point to be considered. Long exposure to severe weather, rain, snow, ice and especially the sun's rays, are detrimental to rubber belts. Therefore, it is always advisable to provide at least a shelter roof over the conveyor. Continual contact with oil or grease also rapidly deteriorates the belt. Where there is a tendency for particles of the material handled to adhere to the surface of the belt, a rotating cleaning brush helps to preserve the carrying side of the belt.

◆ Why Interpoles Are Used

For the best condition of commutation it is necessary that the brushes of direct-current motors be under the neutral point of the magnetic field. Due to armature reactions, however, this position varies with the load, and in the ordinary motor considerable sparking may result, particularly on overloads.

For this reason the interpole, which is a small pole located between the main poles and having a low-resistance winding connected in series with the armature, is used. These poles are magnetized with the same polarity as the armature poles and, if of the same strength, they neutralize the effect of the armature poles, with the result that the magnetic neutral will remain in a fixed position. As they are connected in series with the armature, the strength of the interpole field varies in proportion to that of the armature.

Through the use of interpole windings, it has been possible to improve the commutating characteristics of direct current motors, so that practically no sparking is evident on motors which are overloaded as much as 100 per cent.

It is now general practice to build motors with interpoles in sizes as small as 5 hp. Use of interpoles is also quite general in connection with series motors.

◆ GRUNTING of an engine is frequently caused by the vibration of the piston rings when they have a trifle too much play between the bull rings. The trouble can partly, if not wholly, be remedied by putting in a set of stiffer piston-ring springs.

◆ Removing Paint from Steel Structures

A simple way of removing old paint from steel structures is to dissolve one pound of concentrated powdered lye in three quarts of hot water, adding lime to make the solution thick enough to spread evenly. The solution should be applied as soon as it is mixed, by means of a brush and allowed to remain on the surfaces to be cleaned until it is almost dry. If it is then removed it will take the paint with it unless the paint is very old and thick, in which case a second coat of the solution should be applied.

Before applying a new coat of paint, the metal should be thoroughly washed with a solution composed of one-half pound of sal soda dissolved in two gallons of warm water. After the soda solution has been applied, the surface of the metal should be wiped or warmed until thoroughly dried.

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TECHNICAL DEVELOPMENTS

The following abstracts are of the latest developments found in the foreign press.

IN THE PAPER INDUSTRY

◆ Sulphite Cook With Forced Circulation

The liquor is forced from the top of the digester through a heater and into the bottom by means of a set of gas injectors through which a mixture of steam and gas can be led into the liquor. The injector outlets can be closed singly by valves in order to regulate the gas addition and the rate of circulation. The heater is so constructed that all radiation is absorbed by the circulating liquor.

Swedish Patent 85,382 to S. Svenson. From Der Papier-Fabrikant, May 17, 1936, p. 103.

◆ Silver Coated Paper

Organic materials with a metallic lustre resembling silver or gold have long been desired. This desire has been intensified by the demands of industry not only for decorative reasons, but also for the purpose of conferring new properties upon these materials. The long familiar lacquer process is not satisfactory since the use of metallic pigments does not give the lustrous finish and the surface lacks the desired mirror quality. Coating wth metal foils by means of adhesives has been used to some extent, but recently a process has been developed for applying metal to the organic material directly forming a bright mirror surface.

The precipitation of silver from an aqueous solution to form a mirror surface is well known. Thus a 1 per cent ammoniacal silver nitrate solution and one containing 2 per cent invert sugar, 2 per cent Rochelle salt and 0.3-0.4 per cent silver nitrate when mixed form a fine mirror surface upon the walls of the container, especially if near the boiling point. The formation of a mirror, however, takes place only upon a smooth surface such as glass. Upon any organic sheet material, such as paper, the precipitate lacks the mirror-like lustre. Some improvement results on pretreating the surface with a solution of dihydroxybenzol or with trihydroxy-oxybenzol. But at times the result is colored from yellow to black or steel blue and bears not the slightest resemblance to a silver mirror.

Metal spraying (Schoop process) has been tried, but the finest size particles of metal attainable in this way are far too coarse to form a mirror surface. A highly lustrous surface has been obtained by the use of metallic vapors produced thermically without any electrical charge, the operation being conducted in vacuo (1). The obtaining of a mirror surface by this process is, however, uncertain.

Another method for applying a silvered surface to organic materials such as paper, carton, leather, textiles, synthetic resins, etc., has been developed. This yields a true mirror surface and can be applied to metals and inorganic materials also. The process employs the well known principle of cathode discharge by which the required metallic electrodes are converted into dust by high tension current in a vacuum or an inert gas atmosphere. Fundamentally this amounts to melting the required metal, or metalloid, by passing it through an arc between a glowing metal oxide cathode and a metal anode in vacuo. In order to obtain the best possible mirror surface pure silver in wire form must be approached very close to the anode. Of course such a process cannot be used with good success for

metals that have a strong tendency toward hydride formation such as aluminium, calcium, etc. It must also be borne in mind that the melt-and-spray process is attended by very high temperatures which condition is conducive to reactivity of the metal employed. Consequently everything which might react with it must be excluded. For this purpose a high vacuum (1-2 mm. mercury) is employed. Or the reacting chamber may be filled with an inert gas.

For practical considerations in a high vacuum it is of course necessary to see that the material to be coated does not itself contain particles which might volatilize under those conditions. For this purpose pre-treatment with glycerine proves beneficial. Sometimes the material to be plated can be seen to contain noticeable amounts of yellowish to brown colored material volatile in the vacuum. It is, however, simpler and more practical to alter the material than change the process.

A fundamental feature of such a real silvering process is the attendant high temperature which is all the more noticeable when organic materials like paper, carton, foils, etc., are to be silvered. By various methods, which, however, are but slightly distinguishable, it has been sought to overcome the difficulties which these high temperatures entail. One method, for example, employs specially cooled under layers over which the paper is conducted (2) (3). Another employs cooled electrodes (4). A proposal to conduct the material to be plated through the field between the electrodes (5) must entrain probabilities of failure because of the excessive temperature.

This process has now been worked out on plant scale so that it is possible to provide equipment which with only 1-2 work-power per layer can treat 5,000 running meters in 24 hours of paper, cellulose or acetyl cellulose sheets and the like with a silver layer so economical that, for example, parchment paper covered with real silver can be delivered at a price equal to that of uncombined aluminum foil. Production is continuous and the material comes in rolls just like any other converting process. The illustration shows suitable equipment. Only a fraction of a gram is required per square meter to give a homogenous mirror surface of real silver to paper, cellulose, cellulose derivatives, etc. For the above mentioned daily capacity of 5,000 meters of silvered paper only 1.5 kg. metallic silver is required.

The cost of silvering 5,000 square meters of parchment paper is as follows:

1.5 kg. silver @ R.M. 70	R.M. 105.
Labor, 24 man-hours @ R.M. 1	24.
Electric energy: 288 kw.-hrs. @ R.M. 0.10	28.80
Miscellaneous	25.
General costs, 100 per cent on wages	24.
Total	R.M. 206.80

This is 0.04 R.M. per square meter to which must be added 50 per cent for amortization of the investment and for royalty.

Paper, foils, or other materials, to be silvered must possess the highest possible finish. The rougher the surface to be silvered the duller the finished mirror. Especially beautiful effects can be obtained with supercalendered paper. It is possible to treat the mirror surface with a colored lacquer and obtain effects resembling gold or copper. Likewise, colored material can be silvered and new effects obtained.

• Almost instantly soluble in water, making hard water soft, Tri-Sodium Phosphate is of interest to the paper maker.

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A cellulose sheet silvered by this process resembles a mirror by reflected light, but by transmitted light shows more or less blue violet like colloidal silver, according to the thickness of the silver layer. And, what is particularly important, it is possible to obtain a sheet of transparent material with a highly lustrous mirror surface on one side. This result could never be obtained with any pigmented lacquer, nor with metal foil, except with beaten gold, which is out of the question on account of cost.

Such a material will, without doubt, find numerous possible uses. It could replace metal foils for packaging cigarettes, chocolate, candies, coffee, tea and other food materials, cosmetics and pharmaceuticals, for which the germicidal properties of silver are of value. Since no adhesive has been used there is no odor contamination. The silvered paper can be used for bags, since the surface does not break on bending. It can easily be printed upon. Four-color jobs have been executed with special clearness and freedom from misregister.

The electrical conductivity makes this new material useful for condenser manufacture and other electrical uses. Applied to plate glass it serves for making beautiful mirrors. Other uses too numerous to mention will occur to everyone. The first question to arise is, naturally, "will it rub off?" Practical use has demonstrated this does not happen.

There is a nationalistic advantage that in many instances this material can be used instead of metal foils such as tin or zinc which would have to be imported.

REFERATA

(1) German patent 258,409.
(2) German patent 453,387; 1927.
(3) German patent 407,213; 1924.
(4) German patent 456,812, 1928; and 458,561, 1928.
(5) German patent 413,356.

By Fritz Ohl. Wochenblatt für Papierfabrikation, March 21, 1936, p. 222.

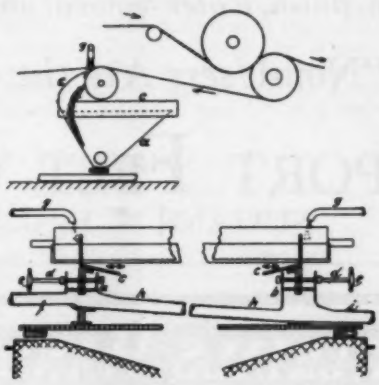
◆ Resin-Extracted Wood for Pulp and Paper

The efforts of the German forest administration to increase German resin production by intensified methods, including extraction of pine stumps, emphasizes the importance of finding suitable methods for economical utilization of this extracted wood. It can be pulped by the sulphate, soda, or sulphite processes with, however, only inferior pulp as the product obtained. Simpler and cheaper processes were sought with a view to obtaining pulp suitable for packing papers. Two wood samples were pulped by three different methods. First, 72 hours soaking in cold water followed by kollergang treatment. Next, kollergang treatment without soaking, but with much water in the kollergang. Third, steamed for 2½ hours, then treated in kollergang and beater. Dry treatment in the kollergang yields only powder and no fiber. The second of the three methods is cheapest and most suitable for large scale operation. The product is rather brittle and needs to be used with addition of some other pulp.

E. Munds. Communication from the Institut fur Papiertechnik an der Technische Hochschule Dresden. From Wochenblatt für Papierfabrikation, 66, 493 (1935) through Der Papier-Fabrikant, May 17, 1936, p. 99.

◆ Arrangement for Immediate Re-Working of Wet-End Trim

Wet-end trim is stripped from the under-side of the returning part of the fourdrinier wire by means of a squirt (g) and collected in receptacles (a) and (b) on the front and back sides respectively of the paper machine. Each receptacle is provided with a removable cover (c) having a vertical leg which serves as a partition to separate the trim from couch roll "broke." This cover can be adjusted by means of spindle (d) and handwheel (e) so that only the trim falls



into the receptacles while the couch roll "broke" falls into a separate collecting channel.

The receptacles (a) and (b) are set beneath the first guide roll on the returning part of the fourdrinier and are connected by a pipe (h). White water, which is the best there is for re-working the trim, is delivered to the receptacles through squirts (g) and pipe (f). The stuff collected in receptacle (a) is washed through pipe (h) into (b) and out through pipe (i) to the re-pulper.

German Patent 629,349, Kl. 55d, to Wilhelm Kittner. Through Der Papierfabrikant, June 28, 1936, p. 142, abstract section.

◆ Peroxide Bleaching

A full white cannot be obtained with hypochlorites in bleaching viscose. Even the best white thus obtained always yellows with age. Hence it is necessary to resort to peroxide after-bleaching or even to the use of peroxide exclusively. For this purpose, sodium peroxide is employed with addition of sodium silicate as stabilizer. The latter decomposes calcium and magnesium carbonates in the water, forming the corresponding silicates. In order to avoid weakening the fiber by oxidation of the cellulose it is necessary to neutralize the NaOH. Alkali silicates do not attack the fiber. Since this process uses oxygen as the bleaching agent the operation is carried out in successive baths. In re-using the bleaching baths it is necessary to control the strength titrimetically. A completely unobjectionable result cannot be obtained on account of the effect of organic compounds in the used bleaching bath. Peroxide bleaching can be used only for viscose. Copper-oxide retained within the fibers of cuprammonium silk acts catalytically to decompose the bleaching bath and this in turn attacks the fibers. Acetate silk cannot be bleached with peroxide, since the acetate is saponified even by weak alkalies.

H. J. H. in "Kunstseide" *17*, 290 (1935) through "Der Papier-Fabrikant," Feb. 23, 1936, p. 33.

◆ Ammonia Cellulose

Dry ammonia gas is introduced into cellulose and allowed to react with it. Afterwards, when no apparent fiber change whatever has taken place, the ammonia is distilled off. The fibers remaining show a changed Rontgen-fiber-diagram which is different from that of natural cellulose or from that of hydrated cellulose. If the fibers thus treated are (after evaporation of the ammonia) placed in water, methanol or even a solution of aqua ammonia, in no case do they show the Rontgen diagram of the original fiber.

K. Hess and C. Tragus, Ber. dtsch. chem Ges. *68*, 1986-88, Oct. 9, 1935, through Die Zellstoff-Faser, April, 1936, p. 64.

◆ Sizing Process

Saponified fatty acids obtained from liquid rosin by vacuum distillation are used in mixtures with saponified wax. Such a product obtained by vacuum distillation from liquid rosin is almost colorless and does not darken appreciably upon exposure to air. Upon saponification with alkali it dissolves easily and then serves as sizing agent either alone or in combination with waxes and is particularly suitable for use with fine white papers.

German Patent 624,133 to F. Schacht Komm.-Ges. From Wochenblatt für Papierfabrikation, March 14, 1936, p. 210.

◆ A Modern Bleach Plant

The Yhtyneet Paperitehtaat O. Y. in Jämsänkaski (Finnland) has installed a new 60-ton bleach plant employing an American Process. The pulp is first pumped into a chlorinator into which the exact weighed amount of liquid chlorine is introduced. After completion of the reaction milk of lime is added until a pH of 8 to 8.5 is attained, then the pulp is washed on two successive vacuum filters and thickened to 18-22 per cent. After further treatment with hot water, the pulp enters the high density tower bleachers where the bleaching is completed. Following this, the pulp is washed and screened. The bleach liquor

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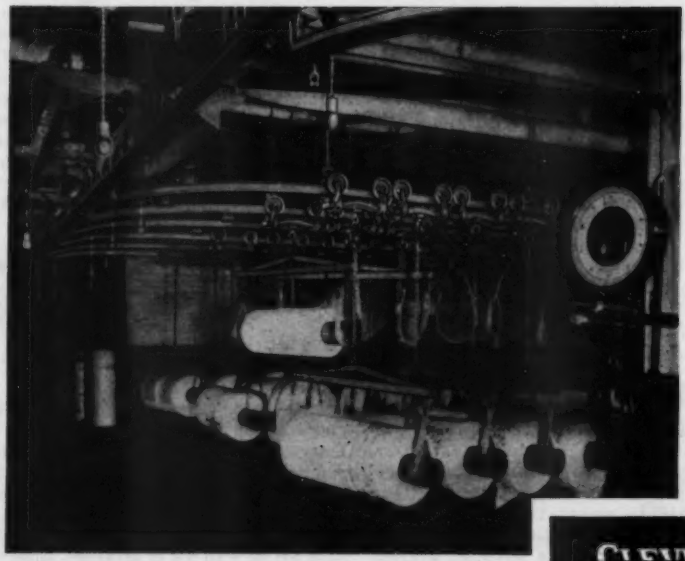

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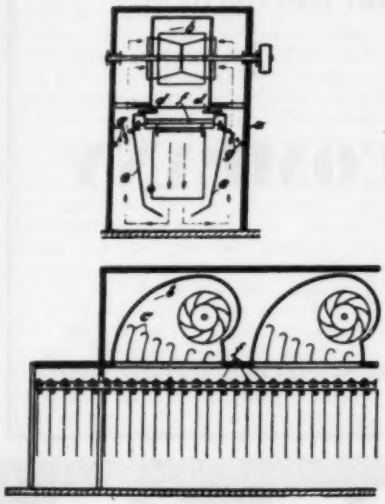
is prepared by conducting liquid chlorine into milk of lime according to the Mathieson Process.

Wochenblatt fur Papierfabrikation 66, 644 (1935) through Der Papierfabrikant May 31, 1936, p. 105, abstract section.

◆ Tunnel Dryer for Sheet Material

In order to distribute the air stream uniformly over the entire length of the tunnel, horizontal vanes (d) are placed above the hanger track but beneath the draft openings of blower (b). These vanes are adjustable laterally to conform with the sheet width. Thus the air current is stronger in the middle



than at the edges and all parts of the sheet dry at a uniform rate.

Baffles (e) are suspended from the hanger track at left and right, extending lengthwise of the tunnel. They are sloped gently toward each other until they extend below the bottom edge of the sheet. Adjustable hinged vanes are attached to the bottom edges of the baffles and serve to equalize the outlet opening with the inlet, as determined by vanes (d). This equalization overcomes any tendency for the air stream to dissipate instead of following the designed course back to the blower between the baffles (e) and the tunnel walls (a).

Protecting strips (f) prevent too strong a down shaft on the upper cross strips holding the sheets. Heating elements (g) set in the path of the return air stream supply the necessary heat for drying.

This design insures rapid and uniform drying without formation of troublesome cockles or wavy edges.

German Patent No. 628,917, Kl. 55d, to Adolf Boleg; through Der Papierfabrikant June 28, 1936, p. 142, abstract section.

◆ Vibratory Wire Cleaner

This invention has for its aim the cleaning of a cylinder machine wire. Since the tightly stretched wires of the sieve are capable of vibrating like metal strings of a musical instrument this is brought about in accordance with their natural frequency or some multiple thereof. Sometimes frequencies as high as 2000 to 6000 vibrations per minute are employed. These vibrations are produced by a drum provided with knobs. The fibers loosened by this means are easily washed off the wire by a shower.

English Patent 430,700, to E. & M. Lamort Fils & M. Lamort. From Wochenblatt für Papierfabrikation, Feb. 15, 1936, p. 133.

◆ Improvement in Cigarette Paper Manufacture

Stearic acid and a white pigment, e. g., titanium oxide, are incorporated in the paper stock. Preferably the stearic acid is liberated in the beater from a salt by means of oxalic acid (pH about 6.0) and the pigment added. Naturally calcium and magnesium salts must be suppressed. It is claimed the addition of stearic acid (around 0.8 per cent) and titanium oxide (2 per cent) aids in giving whiteness and opacity and also contributes to the proper rate of combustion of the paper.

French Patent 798,186 to Societé Anonyme des Anciens Etablissements Braunstein. Through Le Moniteur de la Papeterie Francaise June 1, 1936, p. 254.

◆ Pitch Removal

Abstract from a paper by Aleks Lampen in Suomen Paperi-ja Puutavaralehti Erikios numero 1935 describing an apparatus for the removal of resins from pulp which has been in use in the Tornator sulphite pulp mill since 1931. It consists of a centrifugal with perforated wall. The perforations are so designed that water and resin emulsion can penetrate through them while the pulp fibers are retained.

Investigations over a period of many months have established that if the ether soluble extract of the pulp does not exceed 0.8 per cent no pitch trouble will be encountered on machines that are in good condition (i. e., clean). For well beaten sulphite pulp (e. g., tub-sized parchment) the resin content should not be allowed to exceed 0.7 per cent. In ordinary sulphite papers the resin content may reach 0.9 per cent and in groundwood papers even higher.

The Rauma sulphite pulp mill also has had a pitch removal apparatus in operation for one year.

From Zellstoff und Papier 15-323-4 (1935) through Der Papier-Fabrikant, May 3, 1936, p. 83.

◆ Impregnation Cook

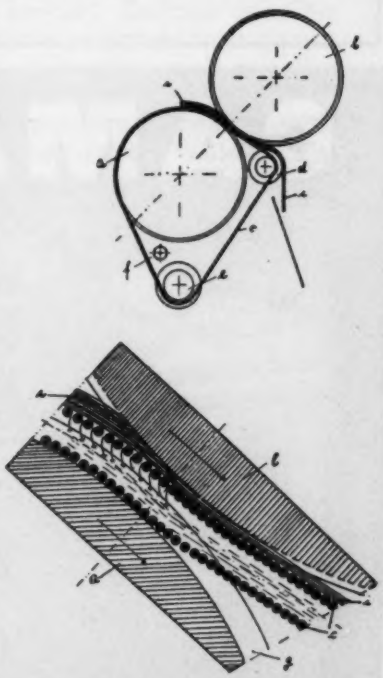
Before cooking, the raw material is impregnated with a solution of alkali—or ammonium—salts, preferably sulphites. Then after partially, or completely, blowing off the impregnating liquor a compound is added which forms with alkali—or ammonium—salts the corresponding bisulphites with a sufficient amount of free SO_2 to complete the disintegration of the wood. The cooking is then completed in the customary manner. It is claimed that by this preliminary impregnation the chips are uniformly penetrated and consequently a better pulp is obtained.

Swedish Patent 85,324 to A.-B. Industrimetoder. From Wochenblatt für Papierfabrikation, May 16, 1936, p. 378.

◆ Dewatering Device

The object of this invention is to provide a means for improved water removal from pulp sheets or the like of greater thickness and water content than hitherto possible. The means comprises a pair of press rolls between which the pulp sheet is carried on a support, or between two supports, permeable to the expressed water. The supporting medium is extensible and when in extended state is readily penetrated by water, but in the unextended state is water-impenetrable. Consequently the pressing action opens up the pores of the supporting medium, allowing the expressed water to penetrate freely. But upon emerging from the nip the pores close up again.

The improvement, basis of this invention, consists of a lower press roll (a) in fixed bearings and an upper press roll (b) movable in the direction in which pressure is exerted and capable of being weighted. These rolls may have hard, elastic, or grooved surfaces. The woven fabric (c), which forms the supporting medium, is led over the guide rolls (d) and (e). The peripheral ve-



locity of guide roll (e) is less than that of the press roll (a) so that the fabric is stretched more on entering the nip than on leaving it. Consequently the threads are drawn apart and the pores are opened up, permitting the expressed water to penetrate through the fabric. On leaving the nip, on the other hand, the tension is released by reason of the slower rate of travel around (e), con-

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sequently the fabric closes up and the water can no longer penetrate.

German Patent 628,110, Kl. 55d. to Johannes Wiebe. Through Der Papierfabrikant June 28, 1936, p. 141, abstract section.

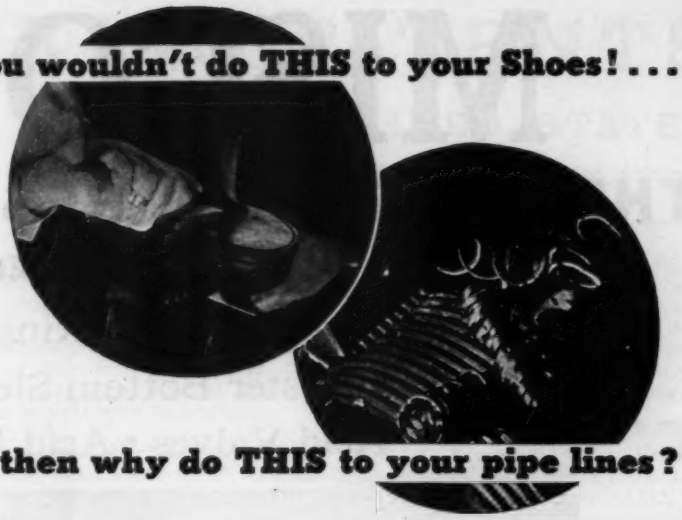
◆ Wood and Straw Cellulose

The lignin solvents (so-called) contain a carboxyl and (or) an ether grouping. They may be used in aqueous solution. For example, wood chips may be heated with 8-10 times their weight of 50-60 per cent dioxan solution, in autoclaves. The temperature is 180-200 deg. C. and the time 2-3 hours. When the liquid is drained off under diminished pressure, a fresh solution is added to the chips which are then cooked 9-12 hours at 180-200 deg. C. The residue is washed with water or with alcohol. Other suitable solvents are tetrahydropyrone, cyclohexanone, diethyl ether, ethyl propyl ether, or diisopropyl ether. The extraction may also be carried out with a mixture of ketone (ether or ester) and a chlorinated hydrocarbon (alcohol or hydrocarbon). Typical mixtures are the following: (a) 40-60 vol. per cent dioxan and 60-40 per cent acetone; (b) 40-70 per cent methylene (or ethylene) chloride and 60-30 per cent methanol; (c) 40-60 per cent acetone and 60-40 per cent diethyl ether (or diisopropyl ether). Retreatment of the wood with mixtures of concentrated HCl and glacial acetic acid may be indicated. Various other examples are given in the patent. —Henry Dreyfus, British Patents Nos. 416416, 416549 and 416558; French Patents Nos. 782466, 782467 and 782468.

◆ Newsprint Made Exclusively from Groundwood

In the Kondopoga papermill, paper (weight 70-80 grams per sq. meter) could be produced without the use of chemical pulp at a rate of 175-185 meters per minute. Besides this, 50-52 gram paper could be manufactured. Provided 5-10 per cent of pulp (refiner stock) treated with 5 per cent NaOH and beaten to 38-40 deg. Schopper-Riegler was added to the mechanical pulp, the resulting product had a breaking length of 2800 meters, and the rate of production could be accelerated to 225 meters per minute. The groundwood contained 20-25 per cent of wood flour (when the beating had been carried to 70 deg. S.R.) and 10-15 per cent wood flour at 62-65 deg. S.R. When the mean weight in grams per sq. m. in pulps containing 7.7 to 8 per cent moisture varied from 52.8 to 54.4; the breaking length varied from 2228 to 2406 meters. Instead of treating stock from the refiner with NaOH, the bolts may be soaked (in NaOH?) followed by steaming prior to the grinding process. The addition of 10-15 per cent of such groundwood appears to be sufficient to yield an adequate grade of newsprint at low cost of production.—A. A. Bechter, L. M. Sadowarkoff, A. O. Lineff: Bumaschnaja Promischlennost, No. 2 (1935), abstracted through Zellstoff u. Papier 15, 402-3 (1935).

You wouldn't do THIS to your Shoes! . . .



. . . then why do THIS to your pipe lines?

• *With a groove cut across the sole of your shoe every step would concentrate the strain at the weak spot. In a threaded pipe line the stresses similarly tend to concentrate at the weakened points —the threaded sections where more than 40% of the pipe wall has been cut away.*

THE pipe system weaves back and forth from expansion and contraction. Vibration of machinery puts certain sections in motion. Sudden opening and closing of valves causes severe shocks in any pipe line. All of these stresses obviously seek out the weak spots.

In pipe lines welded at every turn or branch with Taylor Weldells, Tees, and other Taylor Welding Fittings none of the pipe wall is cut away and the line is full pipe thickness and strength throughout. In fact, Taylor Weldells are made MORE than pipe thickness at the crotch where strains are greatest to insure added reinforcement in keeping with the idea of making every part of the line equally strong.

40% of Pipe Wall is Cut Away in Threading!

This drawing was made from an actual sawed section of threaded 6" pipe. The black portion shows the amount of effective thickness destroyed by threading. The threaded section is only 1½" long—but—every one of these short sections are weak spots—places where your pipe line is capable of fighting only a 60% battle against the forces of stress and corrosion.

Thus in a line welded with Taylor Welding Fittings the nominal pipe wall thickness is the effective thickness. Taylor Forge manufactures the only complete line of Seamless Welding Fittings.

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New York Office: 50 Church Street

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WeldELLS

Seamless Pipe Fittings for Welding

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THE CORROSION RESISTANT ALLOY

IS RECOMMENDED FOR

Digester Neck Rings • Blow-Off Valves • Digester Bottom Sleeves • Digester Heads • Acid Valves • Acid Pumps • Bottom Crosses • Strainers • Fittings • and all other equipment exposed to corrosion by sulphite acids

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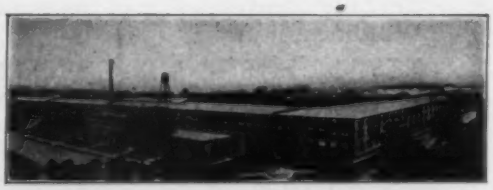


Manufacturers of Kenwood Felts and Jackets for all Pulp and Paper Making Purposes since 1870

KENWOOD MILLS LTD. ARNPRIOR ONTARIO, CAN.

PAPERMAKING PATENTS

IN THE UNITED STATES

Inquiries with reference to any of these patents should be addressed to James Atkins, Munsey Building, Washington, D. C.

Compiled by James Atkins, Registered Patent Attorney

2,038,374—Paper Stock Preparation. Everett K. Mansfield, New London, Conn. Application June 14, 1933, Serial No. 675,762. 2 Claims. (Cl. 92—20). The process of defibering and hydrating fibrous material, which consists in partly disintegrating the material and saturating it with water, delivering the saturated material to an enclosing chamber and subjecting it while held in aqueous suspension therein to a rapid succession of blows by centrifugally actuated means, to effect defiberization and hydration of the material by the impact resulting from the relative inertias of said means and the material while permitting the fibrous material which has been sufficiently treated to be discharged from the chamber and adding further saturated fibrous material while maintaining the same in aqueous suspension for treatment by the centrifugally actuated means.

2,038,502—Machine for Cutting or Shredding Plant Leaves, Paper and the Like. Arthur Podmore, London, England, assignor to American Machine & Foundry Company, New York, N. Y., a corporation of New Jersey. Application May 10, 1935, Serial No. 20,710. In Great Britain March 27, 1934. 8 Claims. (Cl. 146—122). A cutting machine comprising sets of inter-meshing disc knives mounted to rotate upon parallel axes, rotary hollow shafts supporting the disc knives, said shafts having perforations in communication with the spaces between the discs, means for supplying compressed air to the hollow shafts, valve means located within the hollow shafts for controlling the flow of air through said perforations, said valve means comprising a curved wall in the intermeshing zone and extending upwardly from the horizontal plane of the axes of the cutter shafts, whereby air currents flowing outwardly from the disc knives, below such plane, operate to clear the cut material from the cutters.

2,038,679—Paper Making. George A. Richter, Berlin, N. H., assignor to Brown Company, Berlin, N. H., a corporation of Maine. No Drawing. Application February 7, 1934, Serial No. 710,179. 14 Claims. (Cl. 92—21). A paper sheet comprising alkali-solubilizable hydroxycellulose ether in fibrous condition. A process which comprises beating in water paper-making stock including alkali-solubilizable hydroxy-cellulose ether in fibrous condition, and forming the beaten stock into paper.

2,038,708—Paper Making Machine. Daniel Catchpole Bert, York, Pa. Application December 11, 1934, Serial No. 757,055. 3 Claims. (Cl. 92—49). In a paper making machine, a suction drum journaled for rotation, means for producing suction within the drum, pressure rolls and means for supporting the pressure rolls about a portion of the periphery of the drum, for rotation, the pressure rolls being resilient and decreasing progressively in resiliency.

2,038,780—Method of and Apparatus for Cooking Pulp. Frederick W. Adams, Stoneham, Mass., and George S. Witham, Jr., Lincoln, N. H. Application November 8, 1934, Serial No. 752,058. 7 Claims. (Cl. 92—7). That improvement in pulp cooking methods, which consists in storing a supply of acid to be used in the pulp cooking operation, preheating said stored acid to an elevated temperature, maintaining a continuous circulation of the acid substantially throughout said preheating operation, forcing the hot acid into the digester, proceeding with the cooking operation, recirculating the digester liquor during the cooking process, and adding heat to said liquor outside the digester during its recirculation.

2,038,957—Washing Article and Process of Producing Same. Minna I. Reach, South Pasadena, Calif. Application April 18, 1934, Serial No. 721,107. 3 Claims. (Cl. 300—21). The process of producing a washing article from shredded paper which comprises treating a mass of the paper with an adhesive and binder more slowly soluble than the shredded paper, and of sufficient strength to temporarily retard disintegration of the paper in water and retain the article in its formed shape; and then forming the treated mass into a relatively compact body which when dry may be used in the manner of a swab or pad for cleaning purposes.

2,039,308—Means for Extracting Water from Webs of Pulp or Paper. William Parsonage Evans, Swinton, England. Application June 26, 1934, Serial No. 732,426. In Great Britain June 26, 1933. 6 Claims. (Cl. 92—52). Means for carrying out the improved method of extracting water from paper webs, or other material, comprising a substantially closed suction box with support face, spaced lateral apertures in said support face, an endless revolvable belt lateral channels in said belt, closed selvedges to said belt, drainage holes from the channels in said endless revolvable belt, said drainage holes adapted to progressively coincide with the spaced lateral apertures in the support face of said substantially closed suction box, means to permit free access of air between the inner face of the upper stretch of endless revolvable belt and the substantially closed top of the suction box, means to assist removal of silt between said endless revolvable belt and the substantially closed top of the suction box, means for supporting and permitting rotation of said endless revolvable belt and means for draining said substantially closed suction box.

2,041,137—Papermaker's Felt. John P. Koester, Piqua, Ohio. Application January 10, 1936. Serial No. 58,592. 1 Claim. (Cl. 139—383.) Papermaker's felt comprising groups of fibrous warp strands, there being three of these warp strands in each group uniformly spaced apart relatively short distances, said groups being uniformly spaced apart relatively great distances; and groups of fibrous filling strands, there being three of these filling strands in each group spaced to correspond with the spacing of the warp strands of any group, the groups of filling strands being spaced to correspond with the spacing of the groups of warp strands; said warp strands and filling strands being interwoven to provide the felt with reticular woven uniformly distributed stock-supporting portions and with large uniformly distributed water drainage openings between said stock-supporting portions; the weave being such that the alternate stock-supporting portions each comprise the two outside warp strands of one warp strand group both passing over the two outside filling strands of one filling strand group, the central warp strand of said one warp strand group passing under all three of the filling strands of said one filling strand group, and the central filling strand of said one filling strand group passing over all three of the warp strands of said one warp strand group; the weave of the stock-supporting portions intervening between said alternate portions being the reverse of the weave of said alternate portions; the peripheral fibers of the strands being so interlaced as to screen the water drainage openings against passage of stock therethrough without materially obstructing the drainage of water through said openings.

2,041,285—Paper Sizing. Judson A. De Cew, Mount Vernon, N. Y. Application September 28, 1933. Serial No. 691,420. 10 Claims. (Cl. 92—21.) A method of sizing paper which comprises mixing a stream of size with a stream of non-alkaline pulp fibers; and before the fibers can absorb the alkali from the size, discharging the mixture into a chest containing pulp, precipitated size, and alum, while additional alum is continuously added to said chest.

2,039,750—Corrugated Paperboard Machine. George W. Swift, Jr., Bordentown, N. J., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. a corporation of New Jersey. Application April 20, 1934, Serial No. 721,528. 33 Claims. (Cl. 154—30). In a machine of the character described, the combination with mechanism for assembling a plurality of continuous webs and uniting said webs together to form a continuous composite web, of frictional feed belts constructed and arranged to operate on the top and bottom surfaces of the continuous composite web, and power-driven operating connections for said frictional feed belts including a variable speed transmission operable while the machine is running for varying the velocity of said frictional feed belts.

2,041,294—Method of Making Paper. Frank J. Lang, Niagara Falls, N. Y., assignor to International Paper Company, New York, N. Y., a corporation of New York. Application May 8, 1934. Serial No. 724,536. 9 Claims. (Cl. 92—21.) In the method of making paper containing a filler which is normally reactive with acidic material and wherein white water is filtered to recover stock therefrom, the steps of returning reclaimed stock to the beaters, and adding alum to the clarified white water which is thereafter returned to the system prior to the beaters.

2,041,485—Parchment Paper and Process of Making the Same. Fred O. Reiss, Alexandria, Ind., assignor to The Mantle Lamp Company of America, Chicago, Ill., a corporation of Illinois. No Drawing. Application February 27, 1931. Serial No. 518,907. 34 Claims. (Cl. 91—70.) A paper having an alpha-cellulose content of approximately 95 per cent of its total cellulose content and highly resistant to the destructive influence of light or heat, impregnated with a polymerized alkyd-type resin similarly resistant to the destructive influence of light or heat, said impregnated paper having a high light-transmissiveness.

2,042,338—Manufacture of Pigmented Paper. John J. Healy, Jr., Newton Upper Falls, Mass., assignor to Merrimac Chemical Company, Everett, Mass., a corporation of Massachusetts. Application February 3, 1934. Serial No. 709,593. 5 Claims. (Cl. 92—21.) A process of making paper, comprising precipitating rosin size upon paper pulp suspended in water, by adding aluminum sulphate thereto in an amount to obtain precipitation of the rosin and an acidity of the water substantially greater than neutrality, subsequently adding sodium aluminate to obtain substantial neutrality of the water, adding zinc sulphite pigment to the pulp and collecting the pulp as a paper web.

2,042,465—Process for Deinking Paper Printed with Oxidizable Inks. Pierre R. Hines, Portland, Oreg. Application September 30, 1935. Serial No. 42,881. 8 Claims. (Cl. 92—20.) The process of deinking paper imprinted with an ink having an oxidizing oil constituent which consists in shredding the paper, dissolving out its size constituent by a suitable liquor, removing the liquor, then maintaining the shreds in loose condition and moist with a weak alkaline solution and exposed to the air until brown spots appear on the shreds, then again covering the shreds with a weak alkaline solution and so as to exclude further direct contact with the air, until particles of ink carried by a sample of the shreds may be readily detached by slight brushing, then defiberizing the shreds and removing the ink particles therefrom by any convenient further treatment.

2,042,470—Indented Shock Absorbing Cushioning or Packing Paper. John E. Kieffer, Ewing, Ind. Application February 26, 1934. Serial No. 713,067. 1 Claim. (Cl. 154—55.) As an article of manufacture, a shock absorbing cushioning or packing paper provided on both sides with a multiplicity of contacting lines of globular protuberances, all of said protuberances being substantially identical in form and size, the protuberances on each side forming hollow indentations on the other side, there being substantially no flat surfaces on either side of the paper.

2,042,501—Paperboard. Fred L. Buchanan and Reynolds Guyer, St. Paul, Minn., assignors to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota. Application October 22, 1934. Serial No. 749,389. 2 Claims. (Cl. 92—40.) A paper stock for use in forming cartons, said stock comprising a body portion, a black coloring in said body portion, a pigment in said body portion including calcium oxide, a liner free from calcium oxide and covering said body portion upon the side thereof adjacent the substance within the carton, a wax like impregnation in said liner, said impregnation rendering said liner relatively non-absorptive and preventing absorption of the fluids, vapors and odors from the substance within the carton and a facing on the other side of the body portion said facing being constructed with a surface capable of reflecting the light rays of the visible spectrum and absorptive to a degree suitable for printing.

2,042,531—Process and Machine for the Manufacture of Tubes Made of Paper or Like Material. René Jarrier, St.-Quentin, France, assignor to Bartlett Arkell, New York, N. Y. Application May 1, 1928. Serial No. 274,331. In France June 10, 1927. 21 Claims. (Cl. 93—81.) A machine for the manufacture of tubes of paper and like flexible material comprising a rotatable drum, a portion of the wall of said drum being pivoted to the other portion of said wall, substantially about a generatrix of said drum, an internal shaft adapted to rotate as a whole with said drum, eccentric parts on said shaft for supporting the free edge of said pivoted wall portion, manually operable means for rotating said shaft with respect to said drum, power means for actuating said drum and means for spreading an adhesive substance upon the layers of material being wound.

2,043,351—Method of Making a Tissue Paper Product. Charles A. Fourness, Appleton, Wis., and James T. Whelan, Menasha, Wis., assignors to International Cellucotton Products Company, Chicago, Ill., a corporation of Delaware. Application June 1, 1935. Serial No. 24,530. 3 Claims. (Cl. 154—33.) The method of making a tissue paper sheet suitable for facial and like uses, which consists in conducting a creped tissue paper sheet through a pressure zone of substantial length whereby the concentration of pressure at any point of the pressure zone is insufficient to produce any hardening of the material while simultaneously, by means of said pressure, forming in the sheet an all-over pattern not materially coarser than the creping in the sheet.

2,043,415—Felt Cleaner for Paper Mills. Lawrence L. Lapeyrouse, Chickasaw, Ala. Application October 1, 1935. Serial No. 43,109. 8 Claims. (Cl. 92—50.) A felt cleaner for paper making machines including a vacuum head open upon one face, a series of rollers mounted in the head and extending across the open face thereof, and means for discharging water upon the felt.

2,043,818—Paper Machine Slitter Knife. Albert John Thibedeau, Ottawa, Ontario, Canada. Application July 5, 1934. Serial No. 733,777. 3 Claims. (Cl. 164—60.) In a paper machine, a slitter mechanism, comprising a plurality of slitter knives operating under predetermined fixed pressure, means actuated by auxiliary power from a source of supply for moving predetermined slitter knives from the operative to the threading position and for returning the slitter knives to operative position under the same predetermined fixed pressure, and means for controlling said power operating means remote from said slitter knives.

2,044,281—Paper Manufacture. James d'A. Clark and John Traquair, Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio, a corporation of Ohio. Application September 24, 1931. Serial No. 564,790. 11 Claims. (Cl. 92—40.) Apparatus of the character described, comprising a forming wire, means for flowing fibrous stock onto the wire to form the paper web, a traveling pervious belt beyond the wire for receiving the formed web from the forming wire, a trough adapted to contain surfacing material, means for guiding said belt so as to travel within the surfacing material within said trough and thereby pick up a portion of said surfacing material, subjecting the felt to a controlled expelling force to limit the amount of filling material carried thereby, said belt being adapted to then contact with the wire side of the formed web to transfer a controlled portion of the remaining picked-up surfacing material to the wire side of the web.

The COMMERCIAL OUTLOOK

New York, September 1, 1936.

PAPER mills continue busily engaged, and there is a marked feeling of confidence, if not enthusiasm, in the industry concerning the outlook. While some little slowing down of production and trade activity has been noted in the several weeks preceding the Labor Day holiday period, as the summer vacation season attained its height and numerous mill and merchant officials were absent from their offices and as market demand underwent the slight subsiding customarily witnessed at this time, it can be stated that the industry as a whole is in a far livelier position than has been known at this period in some years.

Orders for paper are reaching manufacturers and distributors in a steady stream and in large volume. Consumers and converters are purchasing on a broad scale. Many are covering requirements for an appreciable time ahead; evidently they have no fear regarding price prospects, that is to say that market levels may recede against them; instead they apparently feel that prices are likely to rise, and consequently are protecting themselves by buying freely in anticipation of forward needs. Some mills are so well booked up that they are really unable to accept much, if any more, business for the present, even though they are operating their machinery at maximum capacity. Some in the industry have made the prediction that something of a scarcity of available supply of paper of certain grades will develop in the closing months of the year, the theory being that mills will be so fully sold up by that time they will not be able to accommodate more buying.

The vexatious question of the newsprint price for 1937 apparently has been finally settled. The lead in this connection was taken by the Great Northern Paper Company, which announced an advance of $1.50 a ton to contract customers for next year. The action of this large domestic producer was followed by the International Paper Company, and the large Canadian manufacturers. The new basis will be $42.50 per ton delivered to publishers in the New York City area, and ranging up to between $45 and $46 delivered in other areas, depending on the freight haul from mill centers. It is said that some Canadian newsprint manufacturers are adopting a "hands off" policy for the present in connection with newsprint contracts for the simple reason that there may be a shortage of print paper within the next few months, and they do not want to find themselves tied up with long-term contracts when there is a possibility of publishers being in the position of having to pay higher prices.

Retail advertising in sixty-six major cities for the week ended August 8 showed an increase of 13.8 per cent over a year ago. It was the twenty-fourth consecutive week that 1936 retail advertising exceeded 1935. The volume in the sixty-six cities from January 1 last to August 8 was 524,363,762 lines, up 27,229,882 lines, or 5.5 per cent over 1935. according to Advertising Age.

Production of newsprint in Canada during July, for the third consecutive month, established a new high for any month in the history of the industry, reaching a total of 274,627 short tons, compared with a June total of 270,051 tons and a May output of 267,067 tons. The July production was 40,361 tons, or 17.2 per cent, above the 234,266 tons produced in the similar month in 1935, according to News Print Service Bureau figures. Production by United States mills showed only a negligible increase, to leave the output for the first seven months of this year slightly below that for the corresponding period last year. This lag in output in the United States prevented the production in both countries from setting a new high record. The total turnout of 2,297,390 tons during the first seven months of the current year for both countries compared with the all-time record of 2,349,644 tons in the first seven months of 1929, yet ran nearly a quarter of a million tons ahead of the output in the first seven months of 1935 of 2,053,829 tons.

Shipments of newsprint from Canadian mills in July were 271,794 tons, and from United States mills 74,535 tons, making a combined total of 346,329 tons. Stocks of newsprint at mills in both countries totaled 95,287 tons on July 31 last, contrasted with 93,628 tons a month preceding, and 84,426 tons on the corresponding date a year ago.

Mills in the United States produced a total of 279,390 net tons of paperboard in June, showing a seasonal decrease from the 289,527 tons manufactured in the month before, but a gain over the 256,665 tons in June last year. The June output brought the aggregate for the first half of the current year up to 1,691,138 tons of board, representing a large increase over the 1,569,645 tons during the similar period of 1935, and a larger gain over the 1,434,030 tons in the first six months of 1934. Board mills produced at 70.8 per cent of their rated capacity in June last, against 71 per cent in May this year and 66.5 per cent in June a year ago. New orders received by manufacturers during June called for a total of 282,431 tons of board, contrasted with 280,899 tons in the preceding month and 248,656 tons in the same month last year, while unfilled orders held by mills at the end of June were for 96,402 tons, compared with 92,784 tons a month before and 78,020 tons at the close of June, 1935.

Shipments of prepared roofing from mills in the United States during June, with 28 manufacturers operating 54 plants reporting to the U. S. Census Bureau, showed an increase over the preceding month, reaching a total of 2,329,524 squares of all types of the product, compared with 2,103,439 squares in May this year and with 2,169,418 squares in June last year. Six months' shipments this year amounted to 14,435,047 squares, constituting an appreciable rise over 11,961,929 squares in the same time of last year, and 10,999,841 squares in the first half of 1934.

◆ ◆

◆ FRANK C. REED, who has been vice president of the Westinghouse Electric Elevator Company, was recently made president of the company. Mr. Reed had been associated with the company since finishing his college education in 1902. He became associated with the company as an apprentice.

◆ HARRIS-SEYBOLD-POTTER COMPANY announces the appointment of John R. Lehman as assistant manager in charge of its Seybold Division at Dayton, Ohio. Mr. Lehman has been with the company since 1903.

◆ Thomas Cruthers Made V. P. of Worthington

Mr. Thomas Cruthers has been appointed Vice-President of the Worthington Pump and Machinery Corporation. Mr. Cruthers' connection with Worthington dates from 1907. Graduated from Stevens Institute of Technology, where he received the degree of Mechanical Engineer, he first entered the employ of the Westinghouse Machine Corporation, during which connection he served as superintendent of Gas Engine erecting. In 1907, in the same capacity, he entered the service of the Snow Steam Pump Works, a Worthington subsidiary at Buffalo, New York. Transferred to the Worthington Sales Department in 1908, his first assignment was to the Pittsburgh District Office territory, and subsequently to various others of the Corporation's district offices until 1927, when he was appointed New York District Sales Manager.

In 1930 he was appointed Assistant General Sales Manager, and two years later was appointed Assistant Vice-President in Charge of Sales.

Mr. Cruthers will direct the Corporation's sales activities with large Steam Power Stations, the railroads, waterworks, sewage, drainage and irrigation projects. He will also have charge of general traffic department.

Quality Bleaching INSURANCE!

Strict adherence to exacting production standards has placed SOLVAY Liquid Chlorine to the fore as the bleaching agent upon which the industry can depend. Always full strength, always pure, always uniform—it meets *every* quality demand.

In service and distribution, too, the name SOLVAY is your guarantee of fast, sure, on-time deliveries. Full information and prices on request. Ask for *free* copy of 44-page book on "Solvay Liquid Chlorine."

SODA ASH—Graded to meet every need of the industry and produced to conform to SOLVAY standards. Light—Dustless Dense—Extra Light (Fluf).

Caustic Soda (Solid, Flake, Ground, Powdered, Liquid)
Calcium Chloride — **Special Alkalies**
Modified Sodas — **Sodium Nitrite**
Caustic Potash (Liquid, Flake, Ground, Solid, Lump)
Ammonium Chloride — **Ortho-dichlorobenzene**
Para-dichlorobenzene — **Ammonium Bicarbonate**
Potassium Carbonate (Liquid 47%—Granular Hydrated 83-85%—Dustless Calcined 98-100%)

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 Rector Street — New York

BRANCH SALES OFFICES.

BOSTON			CHARLOTTE
CHICAGO	CINCINNATI	CLEVELAND	DETROIT
HOUSTON	INDIANAPOLIS	KANSAS CITY	PHILADELPHIA
PITTSBURGH	ST. LOUIS	SYRACUSE	NEW YORK

Cooper
Corrosion Resisting
Castings
for the PAPER INDUSTRY

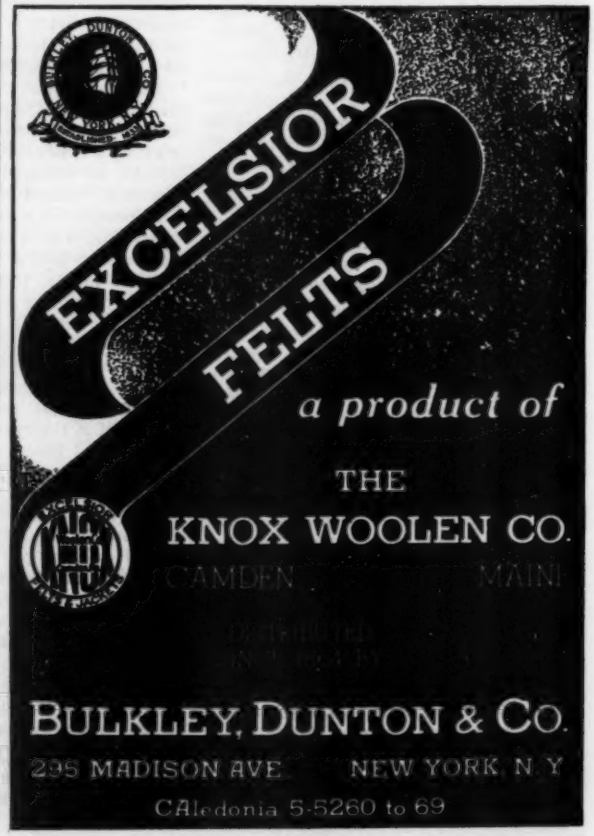
SPECIAL CASTINGS
PIPE FITTINGS • VALVES

All specifications of Carbon, Chromium, Nickel, Molybdenum, and other alloys

These special alloy castings have been successful in mastering many of the corrosion resistance problems of the Paper Industry. If you have a casting problem, we will be glad to work with you and select the proper alloy for the application. Write for complete data.

The Cooper Alloy Foundry Co.
ELIZABETH, N. J.

Distributors:
Jos. T. Ryerson & Son, Inc., Chicago, Milwaukee, Cincinnati, Cleveland, Buffalo, Detroit, Philadelphia, St. Louis, Boston, Jersey City.
Kingsport Foundry & Mfg. Corp., Kingsport, Tenn.
Petroleum Equipment Company, Los Angeles and San Francisco.



Domestic RAW MATERIALS

◆ Papermaking Rags

There is much discussion among dealers and importers anent the strong supply condition existing in papermaking rags, more particularly the lowest class of cotton rags or grades for roofing paper mills. It is asserted that, following a large influx of rags from domestic collection sources earlier in the year, supplies are now coming forward in less than normal volume, nowhere near the usual amounts are available abroad, and an actual shortage of some rags prevails. Dealers go so far as to say that a runaway market situation is likely to arise, based on the restricted supplies in the market and being received from domestic and foreign quarters, if and when consumers come more generally into evidence to replenish stocks and buy on a larger scale.

However, paper and felt manufacturers do not appear to be unduly concerned over the situation. Certainly they are not over-eager to acquire supplies at present; as a matter of fact, a large majority are engaging in decidedly limited buying while apparently having good-sized amounts of rags on hand and their current requirements amply provided for. It would seem to dwindle down to a question of who is right; whether a pinch in supply will be seen should mills find it necessary to increase their takings of rags in the closing months of the year, or whether mills will not have to resort to larger buying sufficient to have the scarcity of rags—if there is an actual scarcity—become a factor affecting market price levels.

The supply position talked of appears to have its foundation in roofing rags, and the supposed shortage of roofing grades apparently is predicated on the foreign situation in these rags. There is no doubt that a number of sources for roofing stock in Europe have been cut off, practically entirely for the present. Russia is no longer shipping rags to the United States; Germany not only is not exporting rags to America but is herself a buyer of roofing and other papermaking rags in adjoining countries; supplies from Spain are out of the question, owing to the civil war in that country, and few rags are to be had in Italy, England and the Scandinavian countries. Only France, Belgium, Holland and Egypt remain for American importers to look to for rag supplies.

Moreover, prices of rags in Europe are climbing fairly rapidly, despite very limited demand from paper and felt mills in the United States. Within the last month quotational levels of European shippers have moved up fully $5 a ton on roofing rags, even though importers here have engaged in very reserved buying and have exerted every effort to check the upward trend in prices. It is no longer feasible to buy roofing stock in mid-Europe at less than 1.85 cents per pound for dark colored cottons and 2.20 cents for linsey garments on a landed basis at New York or other American Atlantic ports, and importers declare but small tonnages are obtained even at these prices. This means foreign rags are far above a parity with domestic material of the same class, as domestic No. 1 roofing stock is quoted at 1.50 to 1.60 cents a pound and No. 2 grade at 1.20 to 1.25 cents f. o. b. dealers' shipping points in the East.

Fine paper mills are purchasing new cuttings in conservative fashion, placing orders when having needs to fill and on the whole absorbing supplies with fair regularity. Prices of cuttings are firm but have recorded no changes of consequence. No. 1 new white shirt cuttings are quoted at 7.50 to 7.75 cents per pound f. o. b. shipping points, unbleached muslins at 8 cents, new blue overall cuttings at 6.75 cents, light silesias at 6 cents, light flannelettes at 6.25 cents, fancy shirt cuttings at 3 cents, washables at 2.75 cents, and new black silesias at 4 cents.

◆ Old Paper

The old paper market displays strength, and prices have moved higher, especially on the low or bulky grades. Board mills have bought freely and have granted advanced rates to get the supplies desired. Demand is running about parallel with supply, if not a trifle in excess of the stock coming into the market as concerns some grades. In the East, No. 1 mixed paper is bringing 35 cents per hundred pounds, and probably slightly higher; old folded newspapers 42½ cents upwards, and old corrugated boxes 55 to 60 cents. Old No. 1 kraft has risen to a quotable basis of 1.15 to 1.25 cents per pound at shipping points, white news cuttings are selling at 1.30 cents, new kraft envelope cuttings at 2 cents, white ledgers at 1.10 to 1.20 cents, No. 1 hard white shavings at 2.15 to 2.30 cents, No. 1 soft white shavings around 2 cents and as high as 2.35 cents for one-cut quality, and heavy books and magazines 55 to 60 cents per cwt.

◆ Rope and Bagging

Scrap bagging is in a firm market position even though consuming mills do not seem especially eager for additional supplies. There is a ready sale for all the bagging sellers have to offer within certain price limits, but a wide divergence in price ideas exists and the relatively high figures asked and the refusal of paper mills to meet quoted rates put a damper on trading. Mills want to buy No. 1 scrap bagging at about 1.50 cents a pound at shipping points, whereas sellers usually demand 1.65 cents or more, and well above this is asked for foreign bagging. Domestic roofing bagging elicits mill bids of around 1.15 cents a pound, but dealers ask substantially higher and frequently quote 1.40 cents or more on imported material.

Old rope, on the other hand, is under neglect of paper manufacturers, who evidently have their requirements covered for a time and who are buying very sparsely. Quotations, somewhat nominal in the absence of worthwhile business, are 2.37½ cents a pound f. o. b. shipping points for No. 1 domestic old manila, and 2.50 cents ex dock New York for No. 1 foreign rope.

◆ Pulpwood

Although demand for pulpwood is fairly steady, it is reported some mills have contracted for their supply next year at slightly lower prices than paid this year, which is regarded as surprising. Costs have mounted, it is declared, and consumption is expected to exceed that of this year, and no reason is ascribed for producers accepting cheaper prices.

◆ Mechanical Pulp

A rather quiet market rules for mechanical pulp, but a steady undertone marks prices and there is no selling pressure exerted. A feeling exists in the trade that severe droughts will lead to more open-market demand for groundwood this winter, since many consumers likely will be unable to grind as much pulp as normally for their own use and will be required to buy in the market to augment their supplies. Canadian groundwood brought down to New York or other Atlantic seaboard ports by schooners is quoted at $23.50 per short ton for moist pulp ex dock. Domestic groundwood is on a quotable range of $26 to $30 per ton delivered consuming mills, depending on the freight haul.

◆ Chemical Pulp

A firm tone prevails in chemical wood pulp and quoted rates are fully sustained. The tendency is upward, though no definite revisions in prices have occurred. Shipments are moving forward steadily from producing mills, and many, if not a large majority, of domestic manufacturers are outsold not only for the rest of this year but well into 1937. Domestic prime bleached sulphite holds at 2.65 cents per pound, ex dock Atlantic seaboard basis; unbleached sulphite is about 1.80 to 1.90 cents for domestic newsprint grades and 1.90 cents upward for stronger pulp. Domestic kraft is quoted from 1.90 cents to substantially higher, depending on quality and location of producer.

◆ Chemicals

Papermaking rosin has advanced further and is now quoted at $6.05 for gum rosin and $6.15 for wood rosin per 280 pounds in barrels f. o. b. southern shipping points. Bleaching powder is active and firm at a quotable basis of 2 to 2.25 cents per pound at works.

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On the contrary, that plant was built by the Orr line supported by the goodwill of hundreds of paper mills.

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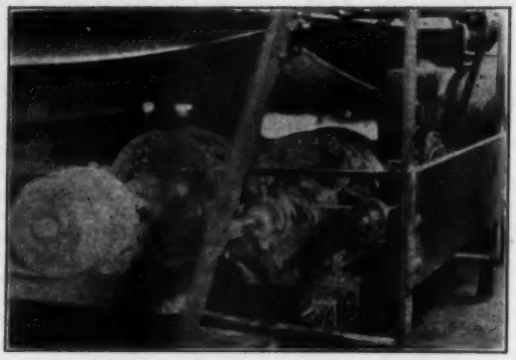

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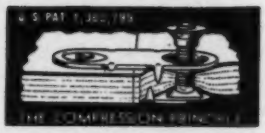

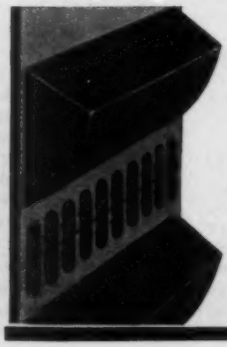

Note how recessed plates compress belt end. Internal friction and ply separation in belt ends is overcome. The tight butt of the belt ends prevents passage of materials or liquids through the belt. Made in steel, "Monel Metal," non-magnetic and abrasion resisting alloys. Five sizes. Sold by jobbers and belting houses. Consultation regarding belt joining invited.

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Import and Export MARKETS

IMPORTS

◆ Wood Pulp

Wood pulp importations into the United States are well on the road toward establishing a new high record this year. Receipts during the first six months of the year showed a big gain over the similar time in 1935, notwithstanding that more pulp was imported last year than in any previous year.

Figures released by the U. S. Department of Commerce show that a total of 930,428 short tons of 2,000 pounds, air dry weight, of chemical pulp was imported during the first half of 1936. This represented an increase of 27.8 per cent over the 727,536 short tons imported in the corresponding period of 1935. Imports of mechanical pulp, totaling 93,317 short tons in the first six months of the current year, recorded a gain of 13,693 tons or 17.2 per cent over the 79,624 tons imported a year ago in the same time.

Imports in June last were exceptionally large, reaching 209,965 short tons of chemical grades, valued at $7,892,774, which very nearly equaled the record of any single month's importations, perhaps being exceeded only by the large imports of 217,730 tons in December last. The June imports compared with 148,840 short tons of a declared value of $5,844,657 in May this year, and 138,754 tons of a value of $5,218,479 in June last year. Groundwood imports in June amounted to 12,972 short tons of a value of $229,790, contrasted with 19,140 tons of a value of $349,705 in the preceding month, and 14,950 tons of a declared value of $274,302 in June a year ago.

A very strong market condition characterizes imported wood pulp. Offerings from abroad continue exceptionally limited, reflecting the sold out position of most producing mills in Europe and Canada not only for the remainder of this year but well into 1937, and exceedingly firm prices are demanded with sellers not hesitating to mark up asking figures in frequent instances. There is seemingly no question that much larger business could be readily accomplished in the market here were the necessary supplies of pulp to be had, as consumers are almost constantly in the market seeking to cover requirements a far ways ahead.

It is asserted to be an absolute fact that some producing mills are outsold for the entire of 1937; at any rate, they have contracted for all of their next year's output that they care to sell at present, and are refusing to entertain additional inquiries. This is true particularly of sulphite mills, and those producing both unbleached and bleached sulphite, it is said. While kraft pulp demand has been pronounced and consumers have bought freely for some time ahead, it would seem buyers have been a bit wary about going too far into the future to contract for such pulp, the reason apparently being that they have an eye on possible supply developments in kraft pulp when the half dozen or thereabouts big new kraft mills now being erected in the southern United States come into production.

Prime bleached sulphite is quoted from 2.75 cents a pound upwards ex dock American Atlantic seaboard, depending on the quality of the pulp concerned and the shipment position. It is nothing out of the ordinary, it is reported, for producers making especially desirable brands of bleached sulphite to ask 3 cents and up to 3.25 cents. Prime strong unbleached sulphite is 1.90 to 2.05 cents a pound, ex dock basis, and easy bleaching grades 2.05 to 2.15 cents. About the lowest at which prime kraft is reported obtainable for any reasonably near dispatch from primary sources abroad is 2 cents per pound on the dock here, and quotations range well above this price or up to 2.30 and 2.40 cents ex dock for spot lots.

◆ Paper Stock

Imports of rags for papermaking more than doubled during the first half of 1936 compared with the similar 1935 period, while arrivals of other paper stock, comprising old rope, scrap bagging, waste paper, etc., increased nearly 60 per cent contrasted with last year. Total imports of base stocks for paper manufacturing in the first six months of the current year reached a valuation of $43,764,336, according to U. S. Department of Commerce figures, and were divided as follows: Wood pulp, valued at $37,475,362; pulpwood, 397,817 cords of a value of $2,817,450, and rags and other waste to the amount of 108,652 tons, valued at $3,471,524.

◆ Paper

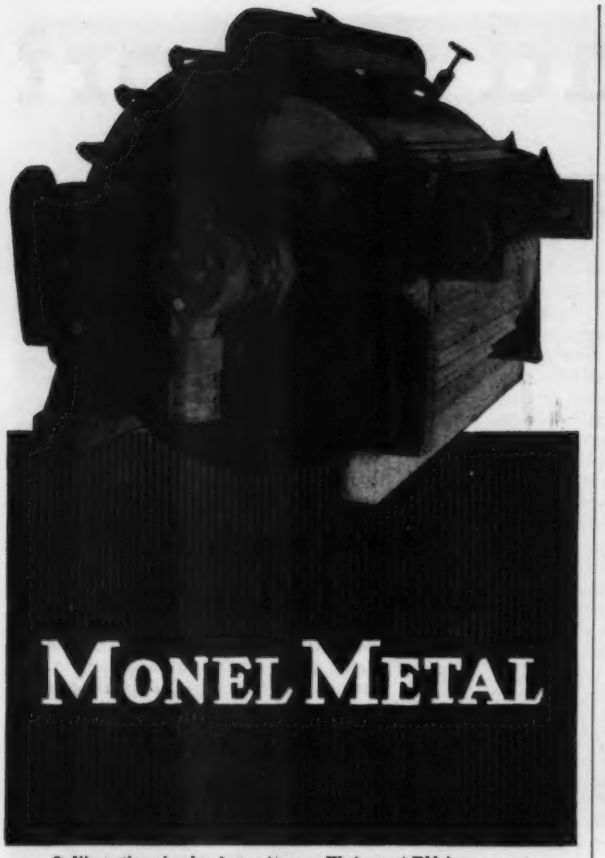
United States imports of paper and paper products showed an appreciable rise during the first half of the current year over the corresponding period of 1935. Imports of newsprint, which accounted for 87 per cent of our paper receipts during the first six months of this year, reached a total volume of 1,228,096 tons, an increase of 127,976 tons, or 11 per cent, compared with the first half of 1935. The value of these imports at the same time rose from $38,083,480 to $44,317,584, or 16 per cent.

Imports of other classes of paper are relatively insignificant compared with newsprint. Arrivals during the January-June period this year reached an aggregate value of only $6,346,049, which figure, however, represented an increase of 22 per cent contrasted with the corresponding period last year. Increases occurred chiefly in imports of printing papers. Arrivals of cigarette paper, which rank next to newsprint in value, were slightly under the 1935 receipts.

EXPORTS

Exports of both paper and paper base stocks from the United States scored sizable gains during the first half of the current year as compared with the similar period in 1935. Exports of paper and paper products reached a total value of $11,048,621 in the first six months of this year. This figure exceeds that of the corresponding period last year by 12 per cent, and is the highest for any half-year period since 1931. While this increase is due in part to a higher average price level in a number of items, outstanding gains in the volume of shipments also contributed to this result. Boards and board products in particular seem to have enjoyed a better demand this year. Exports of boxboard were 30 per cent higher than last year, insulating boards and vulcanized fiber increased 25 per cent, and paper boxes and cartons 26 per cent. Printing papers, including both newsprint and book paper, were under the 1935 volume. Writing papers were about on a level with a year ago so far as quantity of shipments were concerned, but were nearly 25 per cent higher in value. Exports of overissue newspapers were approximately 15 per cent below the 1935 shipments, but in this connection it might be noted that some improvement set in during the spring months and that shipments during the second quarter were nearly on a par with the same period last year, whereas the first quarter's shipments showed a reduction of 25 per cent compared with the first three months of 1935.

United States exports of paper base stocks, amounting in value to $5,461,713, were 9 per cent above similar shipments for the first half of 1935. Exports of bleached sulphite pulp to the amount of 50,902 tons accounted for 63 per cent of this group. Unbleached sulphite accounted for another 23 per cent, and the remainder was made up largely of rags and other waste stock for papermaking.



MONEL METAL

● *Illustration showing Impco Vacuum Washer and Thickener as supplied to West Virginia Pulp and Paper Company. Manufactured by Improved Paper Machinery Corporation, Nashua, New Hampshire. This unit equipped with Monel Metal vat and repulper lining, Monel Metal winding wire and Monel Metal wire cloth cover over vacuum drum as well as wire cloth facing on the suction roll and press roll.*

WRITE it down in your memory that Monel Metal is absolutely rust-proof, that it resists corrosion, that it is strong ...actually stronger than structural steel... and that it is tough, hard and wear-resistant... so that it's economical as well as durable and long-lived.

In addition to these qualities of the metal itself, Monel Metal wire cloth facing and winding wire are available in all standard sizes, weaves and meshes. For these reasons, Monel Metal wire cloth is used in a dozen places around the modern mill:

Cylinder Molds
Deckers
High Density Thickeners
Washers and Thickeners
Save-Alls
Bleach Washers
Cylinder Paper and Board Machines
Brown Stock Washers
Black Liquor Filters
Lime Mud Filters
Screens
Salt Filters

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Beater Bars
Jordan Engine Fillings
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Couch Roll Stay Rods
Suction Box Stay Rods
Suction Boxes and Tops
Save-All Trays
Suction Box Trays
Table Rolls
Doctor Blades
Pump Rods and Shafts
Valves and Fittings
Alum and Size Systems
Coating and Coloring Preparation

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VALVES
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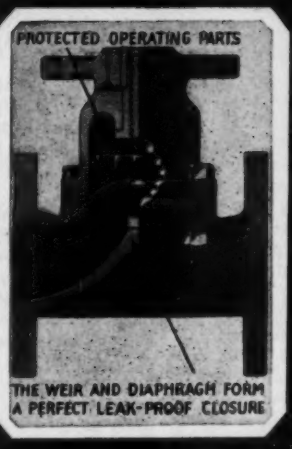

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